NORTH CAROLINA Medical Journal

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November, 1953

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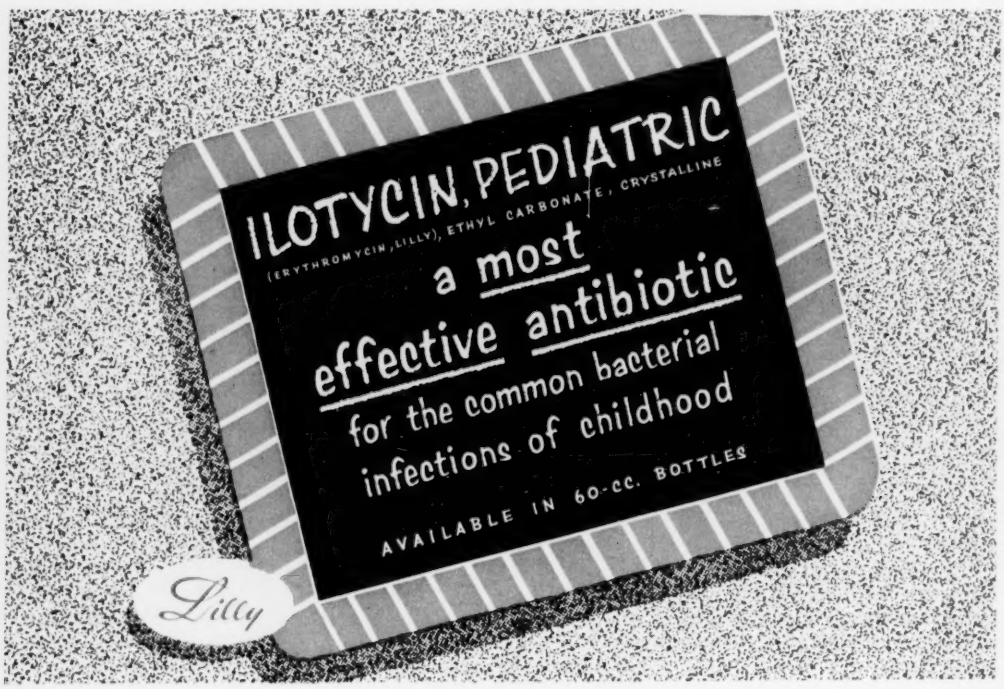

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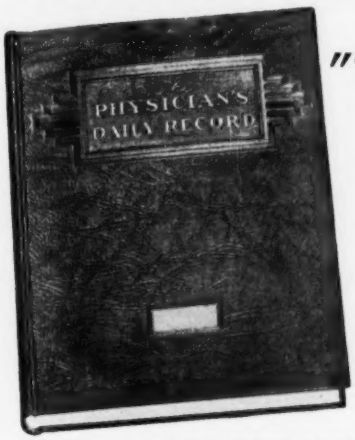

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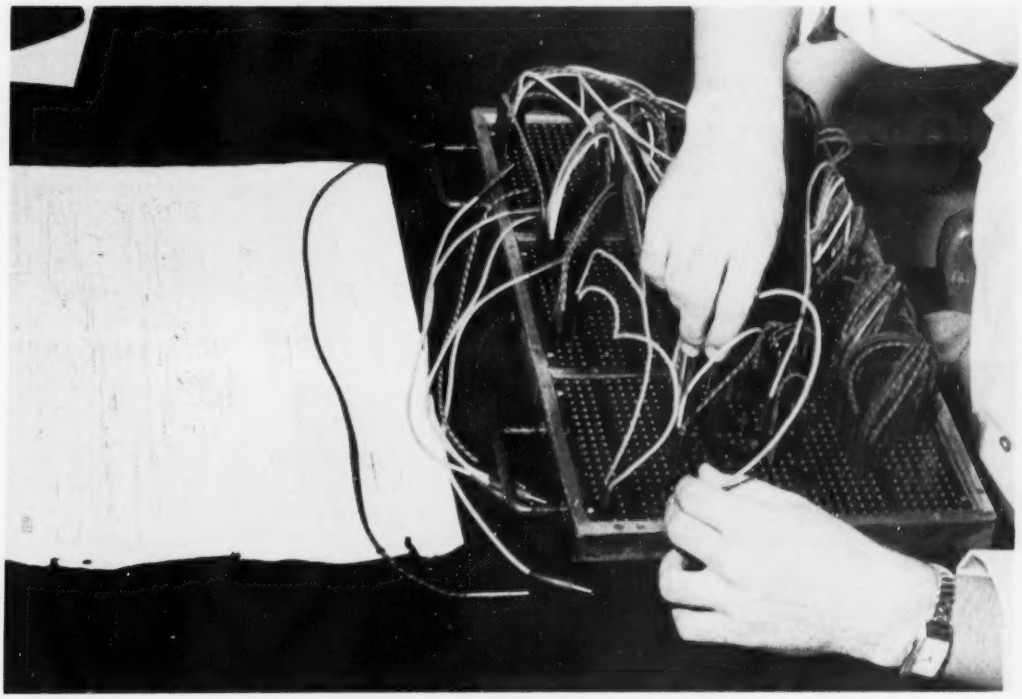

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1. Drabkin, D. L.: Metabolism of Hemin Chromoproteins, Physiol. Rev. *31*:345 (1951).
2. The Biosynthesis of Hemoglobin, Editorials, J.A.M.A. *150*:1223 (Nov. 22) 1952.

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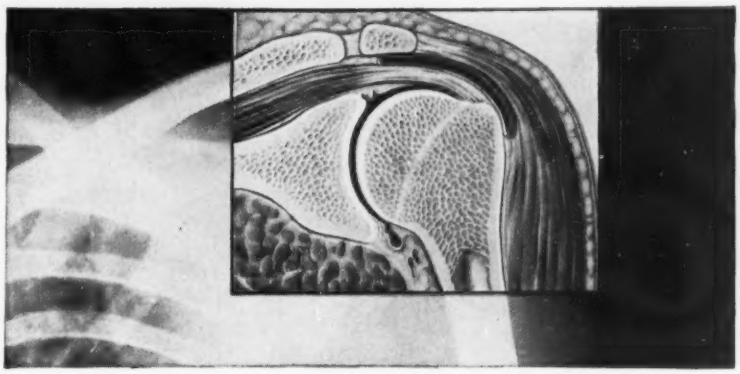

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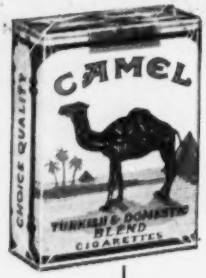

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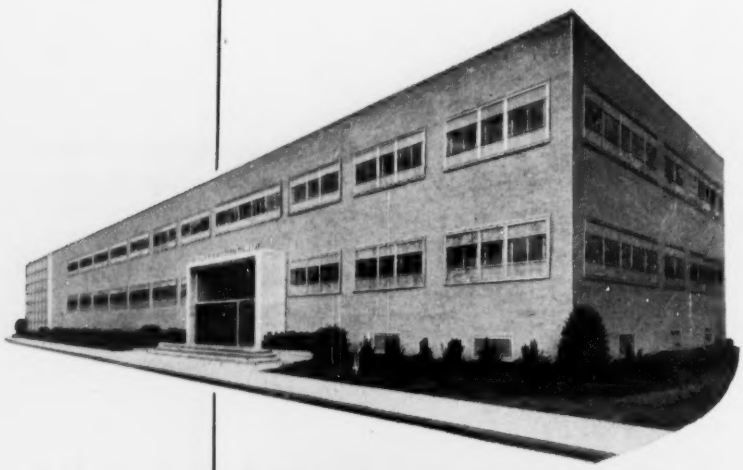

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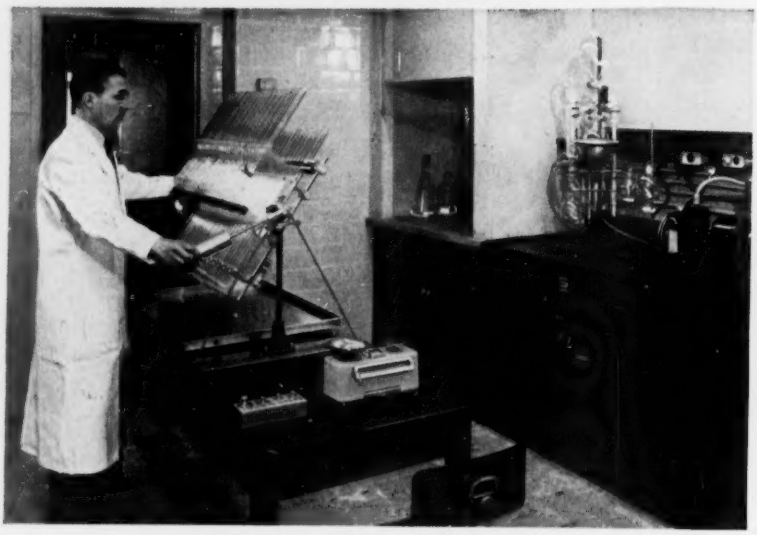

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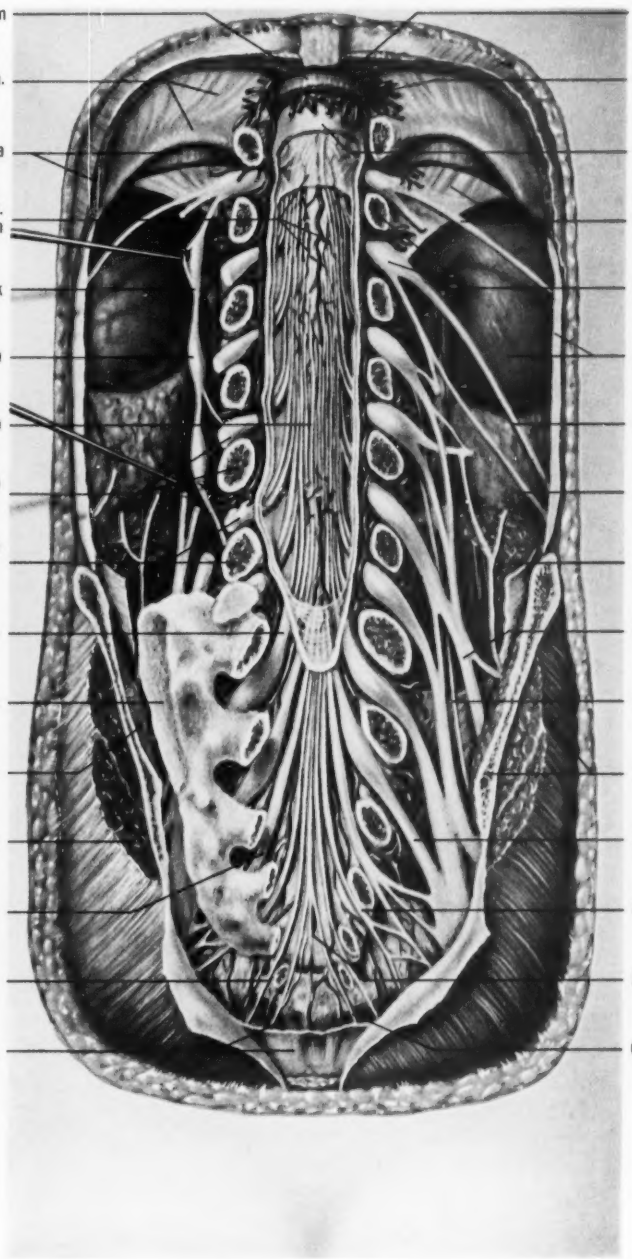

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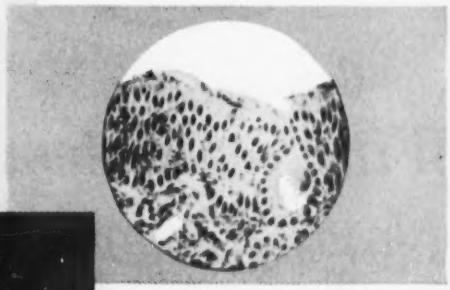

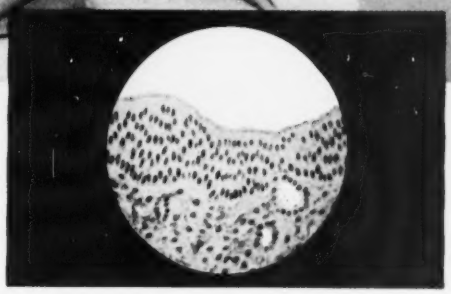

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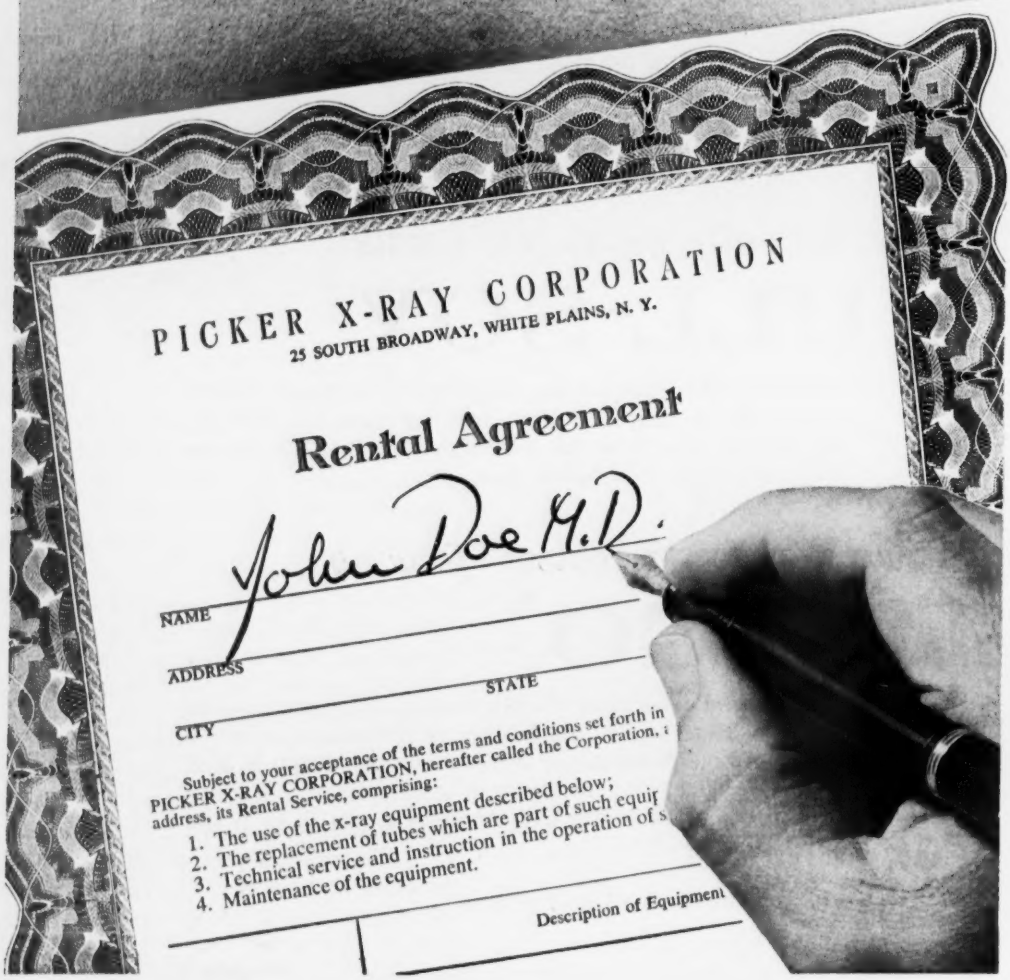
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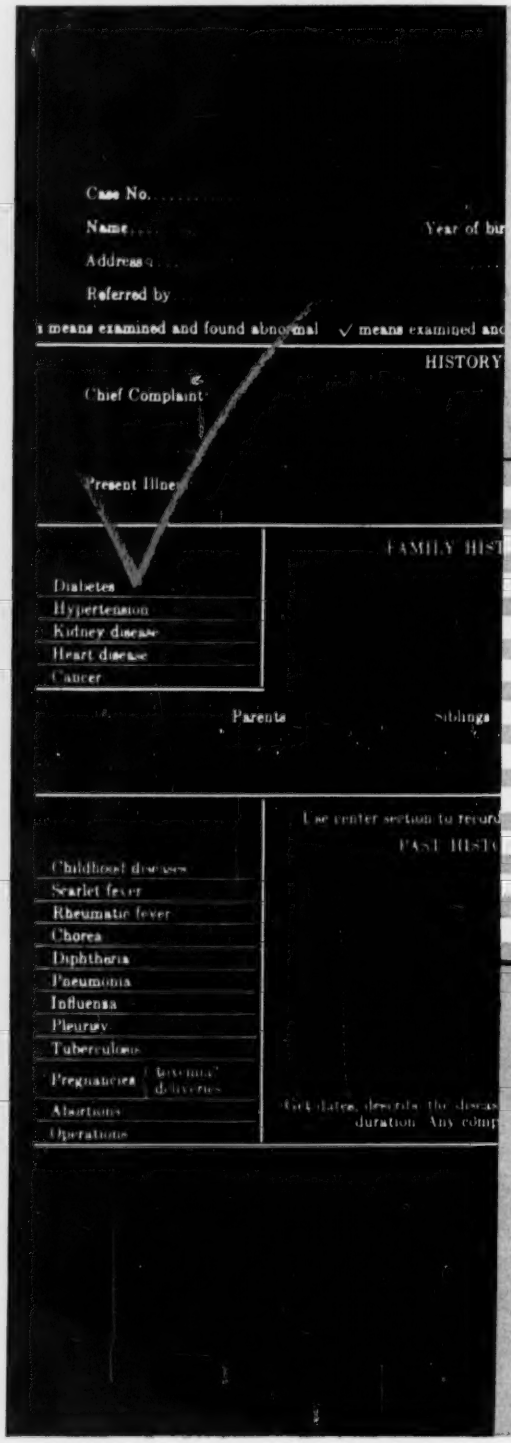

when the history hints at diabetes

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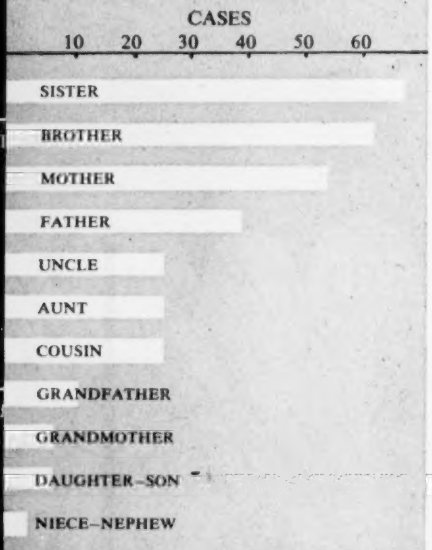

The Diabetic Relatives of 265 Diabetics[1]

In view of "...the very high incidence of...unsuspected cases among the blood relatives of diabetic patients,"[2] urine-sugar testing of all such individuals should be routine and frequent.

1. Barach, J. H.: Diabetes and Its Treatment, New York, Oxford University Press, 1949, p. 38.
2. Allen, F. M.: Diabetes Mellitus, in Piersol, G. M., and Bortz, E. L.: Cyclopedia of Medicine, Surgery, Specialties, Philadelphia, F. A. Davis Company, 1951, vol. 4, p. 505.

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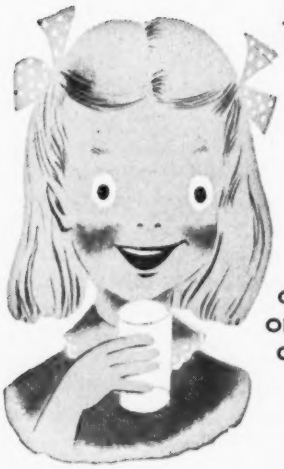

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THE ROLE OF THE PRIVATE PRACTITIONER AND THE PUBLIC HEALTH OFFICER IN MENTAL HEALTH PROBLEMS

PAUL V. LEMKAU, M.D.

BALTIMORE, MARYLAND

It is a tribute to both the medical practitioners and the public health officers of North Carolina that the two groups should find it possible to come together for this discussion. Perhaps we might look first at those areas in which the two have common interests, such as the field of mental health, and later turn to the aspects of the problem to which approaches are different.

Both the practitioner and the health officer are striving to alleviate suffering and disease. To accomplish this aim, human attitudes and habits must be changed, whether it be in the case of the cardiac patient who must somehow learn to live without his competitive game of golf, or of a population that must be taught that water can be improved by adding fluorine. In some cases, as with victims of tuberculosis or venereal disease, the health officer has the legal power to enforce treatment. In general, however, he has learned that best results do not follow the use of authority, but come about when he can persuade or win his patient to accept treatment voluntarily and cooperatively. The practitioner rarely has the power to enforce treatment, with the exception of the certification of mentally ill persons; he usually operates entirely within the realm of his patients' confidence in him and in his advice.

Origins of Behavior

The problem of changing attitudes with a consequent change in behavior belongs within the peculiar realm of the psychiatrist. In order to make a rational approach to the problem, the psychiatrist has evolved certain hypotheses which are fundamental to all work with human beings, but which, because they are the very essence of psychiatric practice, have been worked out most completely within that specialty. The basic idea is simple—namely, that people act today because of memories, conscious or unconscious, of things that happened earlier in their lives. While this general concept can hardly be questioned, difficulties arise when one begins to apply it to particular problems and to work out techniques. Thus few of us would argue that the experience of studying medicine had not left us quite different from what we were before, but when we try to figure out just why we chose to go to medical school at all, the problem becomes much more subtle and complex. Interviewing a fellow physician as a candidate for a partnership calls for a quite different approach from that used in hiring a charwoman to clean the office. In each case, the approach is influenced by what is known of the candidate's background and experience, and vocabulary, manner, and speed of reaching the point are determined accordingly. Many of our best short stories are based on the fact that people are not always what they appear to be, just as most fairy tales deal with a prince charming or a beautiful princess who appears first in some ugly form. Much of the technique of psychiatric interviewing is designed to get behind the facade people erect and to discover the real person and the important problems hidden there.

Read before the Section on Public Health and Education, Medical Society of the State of North Carolina, Pinehurst, May 12, 1953.

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Social

I recently had the opportunity to see this type of analysis of behavior applied not to an individual, but to a population when I spent five days in the Virgin Islands studying the child. Ninety people were involved in the study, about 85 of whom were from the Islands and the rest outsiders bearing the imposing title, "resource persons." One thing we all noticed as we observed the children on their way to school each day was how startlingly clean and stiffly starched they were. The boys wore starched cotton suits and the girls pretty cotton wash dresses. The Islanders told us that this was always the case, that clothing had great significance for them. An anthropologist who had intensively studied the Islands concluded that this special attention to dress originated before 1830, when the Negroes were slaves. The slaves were of two classes—field hands, who were considered to be of low estate, and houshold servants, who held higher status. The most conspicuous difference between the two classes was dress, and it appears that this use of clothing as a mark of status persists today in the insistence on exceedingly neat clothing, not only for children but for adults. This cleanliness and perfection in dress persists in spite of a water shortage that makes washing difficult, and a climate that causes starched clothes to wilt rapidly. This would appear to be an example of a social custom that ceased to have meaning 120 years ago, but which persists as a cultural pattern transmitted from parents to children.

Since medical practitioners and health officers are concerned with changing behavior and attitudes, both will want to know what sort of past experiences has led to the behavior they see before them. When the background of behavior is understood, modification of it, when desirable, is more likely to be possible. We know that it is easier for the sedentary, philosophical person to take care of his coronary than it is for the driving, competitive individual. In practice we use this understanding in modifying attitudes that will preserve health. A city with no pride in its water—and its beer—can accept chlorination without protest, but not so Munich!

Individual

The hypotheses that behavior can be understood on the basis of past experiences has particular importance in the preventive field. If there are unhealthy attitudes, they must have had their origin in earlier experiences; and if these earlier experiences had been different, the later character defects would not have appeared. I recently had a patient, a college student, who had given his dean cause to fear that he had a very sick young man on his hands. The student's class work had slipped far below his usual standards. A little investigation showed that the slump coincided with his falling violently in love. This the dean was used to. However, this young man became tremendously possessive toward his beloved; and when her boss persisted in an old habit of calling his assistants "honey," the young man told the boss not to address his fiancee in this way. My job was to help the dean decide whether the boy was simply a jealous lover, or whether his suspicions were strong enough to be termed psychotic.

It transpired that the dean's fears were groundless. The student's attitude was explained by the fact that he had recently been deceived by a girl who turned out to be in love with her boss, and, further, that he had been trained in an extremely strict code of chivalry that excluded the kind of familiarity he objected to in his fiancee's boss. These are obvious factors; one suspects that probably some imitation of the parents' cultural patterns figured in the situation, as well as many more threads of past experience. If any one factor had been different, the final embarrassment might have been avoided.

The Problem of Prevention

In the foregoing case, I was a medical practitioner reaching a diagnosis and offering what little therapy—both for the dean and for the boy — that was needed. In another capacity, however, I am a health officer, with a particular interest in mental health. As the latter, I begin to ask where my preventive responsibility lies. How can we work in the lives of all the people to prevent the building up of this sort of sensitivity? What is the responsibility of public health for such attitudes, for destructive attitudes generally?

It is clear that one must abandon medicine's traditional exclusive interest in organic pathology if he is to tackle such preventive problems as are implied in this case. Time was when it was proper to infer that

every symptom was the result of a damaged organ, but that time is past. We know now that structurally undamaged organs can work badly, and that the brain, dependent as it is on the senses for raw material, is particularly prone to this sort of malfunction, even though it appears to be organically intact. The adrenal gland is dependent upon cortical stimulating hormones for its proper function; the brain can function properly only when the sensations it receives and integrates are suitable and not inducive to some perverted sort of function.

Early influences

Most students of personality development agree that experiences of infancy and childhood are of paramount importance in the formation of personality, and that if we desire healthy personalities later, the pattern must be laid in childhood. Not long ago I was asked to conduct a case conference at another medical school than my one. The patient was a man of 26 with a paranoid psychosis. This in itself was rather unremarkable until I found that his father was also psychotic. There were 12 children in the family, 7 of whom were known to be psychotic or to have strongly suggestive symptoms. The youngest member of the family, an 8 year old boy, was being treated in a child guidance clinic. Incomplete histories on 2 others indicated that trouble was brewing. Incidentally, it should be pointed out that the high concentration of schizophrenia in this family exceeds the normal expectancy, according to prevalent theories of the hereditary nature of schizophrenia. There are really too many cases in this instance to be explained on the basis of heredity.

Could such nests of schizophrenia be avoided? It seems likely. The father had never had to be hospitalized. Perhaps some outpatient treatment would have reduced his destructive influence on his children. Perhaps if his wife, a rather ineffectual, hypochondriacal person, had been given understanding support by her physician along the way, she could have given her children a stability that they had missed in this disorganized home. It is significant that the 8 year old boy appears to be gaining ground in his illness, perhaps because he has come under the influence of a group of persons stable enough to offset the disturbing home factors.

There is too little available data to support the conclusion that these kinds of reactions are actually preventable. In presenting these cases, I am simply voicing the kind of speculation the mental hygienist entertains in the face of such problems, and the kind of preventive efforts to which he will lend his support. Clearly, these preventive efforts will have to take place within the family, and in some instances a chain of traditions will have to be broken.

Control of cultural patterns

Whoever attempts such a task bears a great responsibility. We have, I think, tended to hold that traditions were too sacred to be tampered with, both fearing the power of these persistent ideas in a culture and respecting many of them as the distillation of the wisdom of the ages. We do not regard cultural traditions as lightly as the college president who published an announcement that "Tomorrow it will become traditional at Old Siwash for all students to walk to classes rather than use automobiles," but we also see how rapidly traditional modes of behavior have changed. In my lifetime the rate of divorces has risen from almost nil until it now seems that, if the trend continues, every person will eventually have at least one divorce in the course of his life. With such changes going on about us, it can hardly be considered irreverent for us to attempt to control cultural patterns and stabilize homes for the purpose of fostering the mental health of children growing up in them. So far as such changes concern health, we of the medical profession, whether in private practice or public health, are responsible for their maintenance or their change.

May I refer again to the Virgin Islands experience, which is still fresh on my mind? A group of us were discussing the superstitions surrounding pregnancy and comparing notes with regard to the different cultures represented. There were the usual fears that if the pregnant woman didn't get the special food she craved, she would lose the baby or it would be marked in some way, and that if she saw a fire and placed a hand on her body, the child would have a birthmark at that place—these are almost universal. The question then arose as to why human beings produce such ideas, what human needs they fulfill, of what value are they in our emotional economy. While we didn't arrive at an answer, I think we did give pause to those who tended to disparage all irrational ideas and feel that they had to be blotted out

in the name of a cold-blooded science. This was in the daytime. By night, under the influence of a calypso singer, these same iconoclasts ecstatically danced to primitive rhythms with an intensity that belied their disrespect for the fantastic and emotional needs of human beings, which was so apparent in the cold light of day.

If we accept responsibility for the mental health of populations, we must acknowledge the needs of human beings for a rich fantasy life of myths and superstitions. Indeed, we must recognize in ourselves the tendency to draw conclusions out of data that are only suggestive; we, too, have the human dislike of the unanswerable question, and attempt to fill the gap with some hypothesis. Psychiatrists are said to be particularly adept at this practice, but others in the profession also indulge.

I doubt that there is any way at this moment to make an accurate and distinct outline of the many issues touched on in this discussion. In these areas we are forced, far more than we would like, to "play by ear" instead of from a fixed score. Perhaps like the farmer in the story, if we are to achieve a scientific exactness in the analysis of the origins of human behavior, we ought not to start from here. But here we are, and from here we must start our refinement of method that will eventually give us the more exact knowledge we crave. Perhaps we can now progress to more immediately practical considerations.

Psychiatric Techniques

The medical practitioner deals primarily with an individual who comes for help. Generally speaking, medical ethics obliges him to deal with that individual alone, although in the light of modern psychiatric thinking this ethic allows taking into consideration what Tyhurst has called "the fourth dimension in therapy" — the involvement of the family and occasionally of the school and other community resources. This is ethical so long as it is designed to cure the patient. In psychiatry as much as in any other branch of medicine the initial diagnosis is paramount. I need not remind you that psychiatric diagnosis by exclusion of organic pathology is no longer acceptable, and that diagnosis on the basis of positive signs is as essential in neurosis and schizophrenia as it is in pneumonia or intestinal obstruction. In psychiatric diagnosis the only useful laboratory instrument is likely to be the skill of the practitioner to get the patient to communicate with him; the only laboratory is the patient himself—who must speak his own laboratory reports. All too frequently his therapy also depends primarily on communication, and he must "cure himself" in a series of guided interviews. These interviews will include the sort of material, vague and impressionistic as it is, that we spoke of in the earlier part of this paper, together with the patient's reactions to factors which have borne upon him throughout his life.

A frequent complaint is that such work takes time that the busy practitioner cannot afford. There can be little doubt that initial diagnosis and therapy in psychiatric cases does take time, but it also yields success and a consequent satisfaction in the practice of medicine that few other types of therapy afford. A great deal of time is wasted and the possibility of therapeutic success squandered when therapy is begun on the basis of the statement, "'There is nothing the matter with you." In the long run, a more economical approach is likely to be: "'The physical examination fails to show what is the matter. We will need to look elsewhere, together, in order to understand this sickness."

The health officer's individual contacts with patients are usually less intensively personal than the practitioner's. The patient frequently has no felt need; he is present to stay well, not to get well. An approach to personal problems is more difficult under these circumstances, but it is not impossible.

The health officer will attempt to deal with problems he knows are present in a large proportion of the population. Such parent-child experiences as the mother's fears in pregnancy, the self-questioning attitudes of first-time mothers, the aggravation caused by the period of negativism and many other behavior patterns provide ample material for educational programs designed to encourage the appreciative attitude between parents and children which is so important in the development of healthy personalities. I have discussed these opportunities for the prevention of useless conflict so often that I hestitate to enlarge on them again except to stress that it is of such simple and homely things as temper tantrums and refusal to eat, of nursery rhymes and Santa Claus, of smiles and frowns, appro-

val and punishment that personality is built. We do not know the optimal mixture of all these to produce optimal health, but we do know that if we are to build healthy personalities, these are the materials that we will be manipulating.

Summary

There are influences bearing upon every individual as he grows and develops, probably most significantly during infancy and childhood, though personality maturation does not cease at adolescence. The practitioner and the health officer will need to be concerned, both in the treatment and the prevention of personality disorders, with cultural pressures on the individual, both as felt in the community and as transmitted from generation to generation.

The material used in personality structure is not complicated—it consists of the homely things of everyday life and of the individual's reactions to them. There is much still to be understood about how that marvel of complexity yet efficiency, the human nervous system, combines and integrates experiences, but it does so by conscious and unconscious memories that make the personality of the moment interpretable in terms of past experiences. In the diagnosis and treatment of patients who have functional disorders, with or without organic disease, these building stones of personality will have to be examined, the data being obtained from the original and exclusive source —the patient.

Prevention of many personality disorders will consist in attempts to insure the maintenance of healthy, appreciative attitudes between children and their parents and those who stand *in loco parentis* from time to time. Dealing with these matters enhances the satisfactions of the practice of medicine and can result in the alleviation of psychiatric symptoms and, we hope, in the prevention of personality breakdown.

Discussion

Dr. Joseph Knox (Wilmington): It is generally conceded that if there is anything to be done in mental hygiene, pediatrics is the field in which to start. As a pediatrician, I agree with Dr. Lemkau that it is the smile, the frown, the nursery rhyme, the fairy tale that go to build personalities for good or bad. The problem goes back to the attitude of doctors, and that puts the finger on the medical school which trains the doctors. When I was in medical school, courses in mental hygiene and psychiatry were usually scheduled at the most inconvenient hour possible and failed to give the student adequate preparation for this phase of his future practice.

Just recently a pregnant mother with three children came into my office. During the interview the mother volunteered: "Joan worries me all day long. We clash from the time we get up in the morning straight through the day. I know it's all my fault."

There was nothing I could do. I had two hands and a stethoscope, neither of which is any good in a case of that sort. But I am interested in the problem because of the fact that personalities are made, or probably warped, as these youngsters are exposed to their parents. As a pediatrician I have an opportunity to do something about it; yet I'm the first to admit the inadequacy of the tools at hand. I'm guilty of wanting to use a stethoscope or a tongue-depressor or an otoscope—to find something I can give a dose of medicine for. I am looking for something I can treat!

PUBLIC HEALTH AND THE PRIVATE PHYSICIAN

OBLIGATIONS AND OPPORTUNITIES

JOHN R. BENDER, M.D.*

WINSTON-SALEM

As a member of the Board of Health of Forsyth County and also of the State Health Department, I have been aware of the caustic remarks and unjust criticism by laymen and professional colleagues alike, who, out of selfishness or misunderstanding, have expressed the backward views of short-sighted personalities rather than the long-range vision of mature judgment. There are few physicians in private practice who are not alert to the need for improvement in the treatment of individual illness or injury, but entirely too many overlook their opportunity for leadership in planning efficient local health centers, hospitals, and medical services for their communities. When we physicians fail to participate in community health planning, we are neglecting our civic duty; and those who assume this responsibility as the result of our default may omit medical consultation altogether when they undertake a program of medical care. Inertia on the part of physicians with respect to their community responsibilities antagonizes the public. The answer "too busy" to attend the sick or to serve on boards, health councils, and agencies becomes a mockery when these "busy" physicians are seen two or three afternoons a week on the golf links. In order to avoid indictment of our profession, physicians must strive to maintain good

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Chairman of the Board of Health, Forsyth County, North Carolina.

will in our respective communities through a willingness to serve.

Definition and Objectives

The interrelationship between the local health department, the practicing physician, and the community can be better understood if we analyze the definition of public health. The definition accepted by the United Nations reads:

> "Public Health is the art and science of preventing disease, prolonging life and promoting physical health and efficiency through organized community effort for the sanitation of the environment, the control of communicable infections, the education of the individual in principles of personal and community health, the organization of medicine and nursing services for the early diagnosis and preventive treatment of disease and for the development of the social machinery which will insure to every individual in the community a standard of living adequate for the maintenance of health."

Therefore, public health should be considered an institution created by society to protect and promote a state of community well-being. We may also accept the premise that through public health each community should so organize its efforts as to enable every citizen to realize his birthright of health and longevity. It is in his local community that the physician has his greatest opportunity to become a statesman in public health.

We must recognize the continuous interacting relationship between the practice of medicine and the social and economic pattern of the community. It is here that many of our public health problems exist. These social and economic patterns create different problems in different communities and necessitate the many different divisions in the structure of health administration. Regardless of diversified community problems, however, none of the special divisions of health service should enter fields which will create friction in the structure of medical care.

The object of public health is not merely to prolong life, but to increase the vigor, efficiency, and happiness of all the members of our complex society. This is no easy goal, and it has no appeal for those who fear opposition or criticism. Just as the function of the practitioner is to care for the individual sick person, the function of public health is to prevent illness in the community. Health officers and private practitioners realize that their duties are the same—namely, the care of the sick and the prevention of disease.

The basic principles of the American Medical Association are: "To promote the science and art of medicine and the betterment of 'Public Health.'" The principal objectives of the U. S. Public Health Service, the State Board of Health, and the local health department are the same. This unity of thought and oneness of purpose has created an endorsement, one for the other. There is no conflict between these agencies and private medicine.

It should be remembered that public health is not limited to preventive medicine, communicable disease control, sanitation, or anything less than the promotion and attainment of better community health. To attain this goal, we must use our vast knowledge and skill for the prevention of disease. The community must rely upon its local health department for the diagnosis and treatment of its various ills. A few community problems which come under the specialized care of the community doctor — the board of health—are environmental sanitation, rodent control, sewage disposal, stream pollution, pasteurization of milk, inspection of food, maternal welfare, accident prevention, and many others. Each of these problems is directly concerned with the prevention of disease and the betterment of the community. The task requires the full utilization of all available professional knowledge and skill; and, far from giving rise to conflict, should create the closest unity between the local health department and the private practitioner.

The Health Department—Administration

The health of any community with a local health department rests upon a tripod — namely, the health department, the practicing physician, and the private citizen. The health department, under the local health officer, is the administrator of such community assets as federal and state funds, grants, gifts, fees, taxes, appropriations, and so forth. This supportive leg of the tripod, which I choose to speak of as administrative, is closely associated with the various communities of the county health districts, and the health officer acts as liaison between the individual citizen and his county board of health, the State Board of Health, the federal government, and the U. S. Public Health Service. This administrative leg was created by legislative action, first in the establishment of a State Board of Health and later in the establishment of local boards.

Power delegated to the local boards of health through constitutional and statutory authority gives the health department of each county or health district local autonomy. The authorization reads:

> "The County Board of Health shall have the immediate care and responsibility of the Health interest of their County. They shall make such rules and regulations and impose such penalties as in their judgment may be necessary to protect and advance the public health."

This sweeping grant of power to legislate in health matters gives the local health department autonomy which is respected by the courts so long as it does not run counter to state and federal constitutions and statutes. With this delegated power goes the responsibility of each physician in the community to analyze local situations as they arise. Where conflicts or friction exist they should be met with an honest, courageous, objective approach, with a sharing of responsibilities and a mutual confession of errors. The achievement of our purpose—to protect and advance the public health— does not require all sweetness and deference, for such an attitude or purpose would be worse than no purpose at all. Only in honest disagreement, provided it does not reach the point of stifling the effectiveness of the health department, will the department grow, develop, and move forward.

The Private Physician—Construction

This brings us to the second support of the tripod, which I propose to call "construction." The practicing physician, through membership in his county medical society, State Medical Society, and the American Medical Association is the main pillar of support. This affiliation brings together the physician in private practice and the physician in public health in a fraternal association. It provides social relationships, one with the other, and affords an opportunity for critical examination of the strengths and weaknesses of physicians in various fields of practice. Each particular field deserves and should enjoy the confidence and respect of the others.

The private physician is trained to diagnose and treat individuals, but he is not trained or experienced in treating the body politic — the whole community. This body politic can be treated definitively only by a team of professional health workers, engineers, sanitarians, health nurses, technicians, clerks, and others working together. To delegate to or expect from the private physician definitive treatment of civic ills is failing the community and aggravating any conflicts which may exist between the physicians and the health officer, as well as leaving the medical profession vulnerable to attack by those who wish to vilify our system of practice.

The health department affords the best single public relations medium the medical profession can develop. An active committee in each county medical society is needed for consultation with the local boards of health and health departments. Such a committee will make sure that our health services are kept in useful fields. It is time for us to take inventory and make a careful appraisal of our services versus our present needs, and also to plan discreetly towards the needs of the future.

The Private Citizen—Unified Action

This brings us to the third support of the tripod—the one which I call "Unified Action." Without the former supports—administration and construction — the system of community health would fail. Without a third support, the other two would become ineffective. While the health officer and private physician are indispensable, the actual working power should be drawn from the citizens of the community. Such power can be obtained only by coordinating the efforts of the private physician and the public health practitioner. The American people are greatly interested in the alleviation of human suffering, in the social implications and economic penalties of disease, and in the improvement of Man's lot through preventive medicine and public health. The public concept of disease has changed from regarding it as inexorable fate or the wages of original sin to tangible enemies which can be defeated by proper organization and financial support. This change of attitude has created a public demand from which the physician and health officer cannot escape, lest by public pressure and political power they find themselves subservient to bureaucracy.

The principal health need of any nation as socially, technically, and scientifically advanced as ours is an instrument that will offer an intimate, personal service to which individuals can turn for assistance and guidance, in times of physical and mental distress, and a basically sound diagnostic and therapeutic service that will assure the individual a good first line of protection

against the common hazards of illness and injury. To a large degree—culturally, and in private practice — the family physician is this instrument; therefore, the health needs of a nation depend upon the success or failure of the practicing physician in discharging his responsibilities.

Loss of Confidence Despite Progress

I am aware of the remarkable progress made within the life span of this generation, and I am also aware that medical science is progressing at an almost unbelievable rate. Approximately 80 to 90 per cent of the therapeutic agents and diagnostic tests which are considered routine today were unheard of or regarded as rarities a decade ago. As these therapeutic adjuncts have emerged from the laboratories to the field of everyday practice, the health of the community has proportionately benefited.

More notable, however, than the recent progress made in medical and surgical techniques and immunizations has been the advance in environmental sanitation, insecticides, nutrition, hospital construction, economics, screening tests, and mass surveys for early case finding. The medical profession today, as never before, is seeking better health care for its people through continuous research, improved methods of sanitation, more careful inspection, stricter enforcement of the Pure Food and Drug Act, and many other day to day services.

The citizens of America enjoy the best medical care of any country of the world. The system of American medicine is the best the world has ever known, and the American Medical Association is acclaimed the medical leader of the world. In spite of its record of service, however, this system, which is the best to be found, and which continues to get better, is being vilified by those people to whom it is giving so much.

Why?

I do not have all the answers for all the whys, but I think we can find many of the reasons from a statement which appeared in an editorial in a metropolitan newspaper several months ago! "Many a man frankly doesn't care whether the efficient machine in the white coat is socialized or not, because he feels the machine doesn't give a damn about him."

We should read in this not an attitude of belligerence, but a disturbed concern over the loss of confidence in the American doctor. As the third support of the tripod, the private physician has an opportunity to restore public confidence in American medicine. We have lost such confidence because we who are presumably above the average in our community, with superior training and unquestionable standing, have failed to play our proper role as private citizens.

The Fault and the Remedy

Why do medical men default in their responsibilities as citizens? Is it because we have concentrated on the scientific aspect of medicine and lost touch with the social, economic, and political realities of today? Has our scientific growth isolated us from the complex problems of modern civilization? As a result of superior training and endowment, practicing physicians today should play a major role in the affairs of the county, state, and nation. This we must do if we are to retain our freedom not only in medicine, but in our way of life.

As practicing physicians, we must concern ourselves with the following:

1. We must keep flowing a never-ending stream of scientific and technical advances in medicine, in order to give our patients the best possible medical care. The patient's right to skilled medical care must always be respected. There must be absolute teamwork and liaison between the practicing physician and the various health agencies.

2. We must concern ourselves with the economic, social, and political aspects of medical care as it involves the present and future welfare of the American people. The patient's welfare must always be our primary objective.

3. We must approach the future with a keen insight into the new problems which have been created by the rapid progress of medicine. The prolongation of life has produced the new problem of finding ways and means to prevent and control the degenerative changes leading to chronic illness. The lengthened life span has resulted in an ever increasing burden of human suffering attendant upon the vicissitudes of old age and economic strain. If we aid people by adding more years to life, we must also aid them by adding more life to years. As citizens we should use our influence and knowledge in helping to improve the attitude of industry toward employing older persons and in

getting insurance companies to extend medical coverage to protect the added years.

A community, like a private business, needs to talk out its problems. The people need to understand what goes on above and below the range of their immediate vision. They need to understand the complexity of their community problems and the over-all effect of these problems on their environment, their economy, their livelihood and their health, and to develop an over-all program. Our task in such a program is to make known the answers, through community education and the promotion of sound voluntary health insurance plans. We see in this that the solution of our main problems, as an integral part of our community welfare, through the third leg of our tripod is: (1) an atmosphere of friendly understanding and health education between doctors and the general public; (2) recognition that the doctor of medicine exists for the benefit of the people and not for the benefit of the profession; (3) recognition that medicine is a social as well as a biologic science; (4) recognition that it is necessary as never before for the private physician to discharge his responsibilities as a citizen.

Conclusion

The task of the future cannot be solved by formulas alone. We must be wise and understanding as well as courageous, and as professional men dedicated to the saving of human lives, we must be unwilling to leave the direction of human affairs to those who believe in duplicity, dishonesty, or force. Leadership in moral responsibility is sorely needed, and recognition of this need will be the beginning of our realization that something must be done. We must take every opportunity to bring a knowledge of moral responsibility into every facet of community life. Our best friends in any community are our patients who look to us as leaders. We should take advantage of this close, personal association to teach them their moral responsibilities and to show them that the health of a nation rests on the health of its individual citizens.

In order to have a healthy and strong nation, we must be healthy and strong ourselves. Reforms must come from within and not from without. When we see ourselves as private citizens as well as physicians, and as an integral part of our community, we will then acknowledge our responsibilities and lead others to do the same. The community, the health service, the social and economic structure of government will then reflect the honesty, integrity, and ability of our profession.

We should remember that medical men in the past won their standing, not as scientific machines, but as sympathetic and understanding human beings, and we should obey His command, "Go Ye and Do Likewise."

ROENTGEN FINDINGS IN CONGENITAL DEFORMITIES OF THE HIP JOINTS AND LOWER EXTREMITIES

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DURHAM

Congenital Deformity of the Hip Joints

Congenital deformities of the hip joints are not always obvious at birth. Meager clinical findings supplemented by a roentgenogram during the first month, however, may provide strong evidence of abnormality. A satisfactory roentgenogram is the most important aid in the diagnosis of hip joint defects occurring early in infancy.

Dislocation of the hip joint may be more easily understood if the pathologic process is considered as beginning with minimal discrepancy in the joint tissues and progressing to more severe change. The less serious congenital dysplasia (fig. 1B) or subluxation can be considered as an early stage of complete dislocation of the hip joints. Congenital dysplasia implies a disturbance of the osseous development which is characterized chiefly by a flat acetabular roof and underdevelopment of the head of the femur. The congenital factor is seen in the predisposition to dislocation indicated by a growth disturbance of bone affecting the entire extremity and corresponding half of the pelvis, and in particular the acetabulum. Weight bearing and muscle contractions gradually lead to upward displacement of the femoral head during the end of the first year of life. The physician must recognize this situation during the first few months of infancy so that treatment can be started early.

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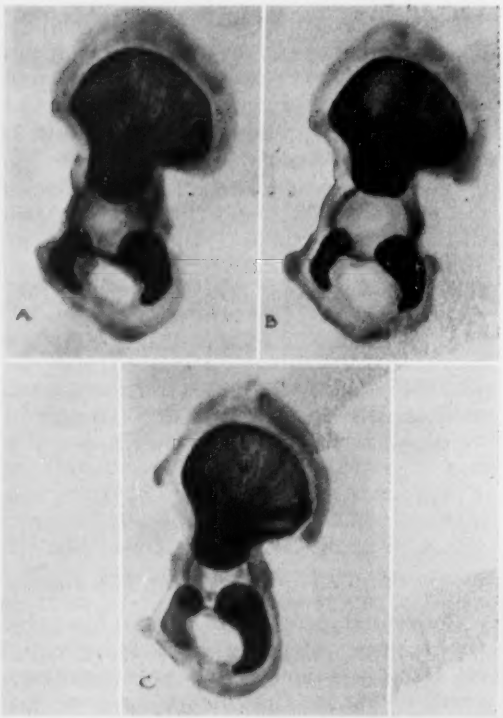


Fig. 1 A. Direct lateral roentgenogram of the normal acetabulum in a newborn specimen. The osseous nuclei of the ilium, ischium, and pubis are evident. The light shading represents cartilage tissue.

B. The acetabulum of congenital dysplasia shows the osseous nucleus of the ilium protruding only to a degree where it makes contact with the upper margin of the acetabulum. The entire acetabulum has less maturity than in the normal.

C. In arthrogryposis, the pelvic bones are closely approximated, the acetabulum is extremely small, indicating that dislocation is already present. (Courtesy, Hass, J.: *Congenital Dislocation of the Hip*, Charles C Thomas, 1951).

Pathology

The femoral head, which is first displaced laterally because of relaxation or elongation of the capsule, is pulled upward by the muscles about the thigh and hip (fig. 2A) and eventually pushed upward by weight bearing. The femoral head must be displaced as far laterally as the acetabular margin before it can be moved upward and outward (fig. 2B). As long as the upper end of the femur is engaged under the acetabular margin, the femoral head is only subluxated or partially dislocated.

The normal femoral head is round, and forms about two thirds of a complete spherical surface. In a normal hip it is opposite the acetabular fossa and just below or touching the Y-line (fig. 3A). When the extremity is perpendicular, the acetabular cartilage covering the outer portion of the femoral head protrudes slightly beyond the osseous rim of the acetabulum. In congenital dislocation, the femoral head undergoes regresion, showing chiefly reduction in size in keeping with the general atrophy of half of the pelvis. The acetabulum of the completely dislocated hip is usually small, especially in older children. If the dislocation is incomplete, the acetabular roof is shallow and oblique and sometimes grooved or notched as the result of pressure of the femoral head against its flexible cartilaginous superior margin of the glenoid lip. The ligamentum teres may be degenerated, separated, or even absent. It normally acts as a check rein, limiting rotation and abduction.

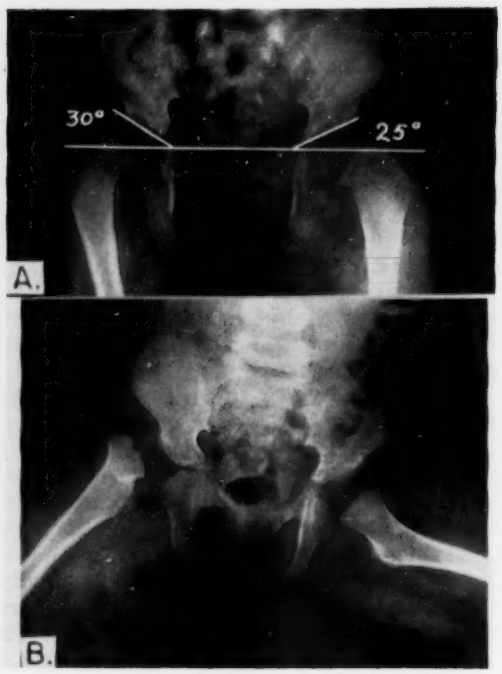


Fig. 2 A. Roentgenogram showing a dysplastic hip on the right. The acetabular angle is 30 degrees as compared with 25 degrees on the normal left side. The shaft of the femur on the right rides upward and outward. Treatment requires continuous abduction with a pillow splint, cast, or bar between the shoes.

B. The right femur is now out of the acetabulum and the dysplasia has changed to a dislocation. Adequate abduction was not maintained. The right acetabulum is shallower than the left, and the ossification center is not apparent on the right but has appeared on the left.

Fig. 3 A. The right hip is completely dislocated. This fact was not noticed until the child began to walk. The roentgenogram shows an increased acetabular angle, upward and outward displacement of the femur, delayed appearance of the capital femoral epiphysis, and a shallow acetabulum. Shenton's line is distorted.

B. Adequate reduction was obtained and the antetorsion of the upper end of the femur was corrected by supracondylar osteotomy. The acetabular angle is still greater on the right than on the left. The capital epiphysis is smaller and the femoral neck hangs away from the acetabulum on the right. A lateral view shows the right femur to be well seated in the acetabulum. Abduction is continued until the capital epiphysis becomes large and the acetabulum deep.

It is not known, then, whether the primary cause of congenital dislocation is a relaxed capsule, a defective acetabulum, or femoral anteversion. It may be that the deformity of the acetabulum is secondary to pressure of the femoral head against the superior margin of the acetabulum (fig. 3A). The obliquity tends to disappear when there is good reduction of the femur in the acetabulum (fig. 3B). Relaxation of the capsule is the one constant pathologic finding, and if the capsule is not relaxed, the head cannot move outward to dislocate.

Roentgen pathology

A roentgenogram of the dysplastic hip (fig. 1B) shows that the ossification centers of the ilium and ischium are not close enough together to allow adequate ossification of the posterior superior quadrant of the acetabulum, which remains cartilaginous. The osseous roof of the acetabulum is shallow when the tip of the cartilaginous roof is in normal position (fig. 4A). In the dysplastic hip joint there is a normal distribution of the cartilaginous portion of the joint with recession of the joint. The condition of dysplasia may persist without terminating in dislocation, although some cases do progress to dislocation.

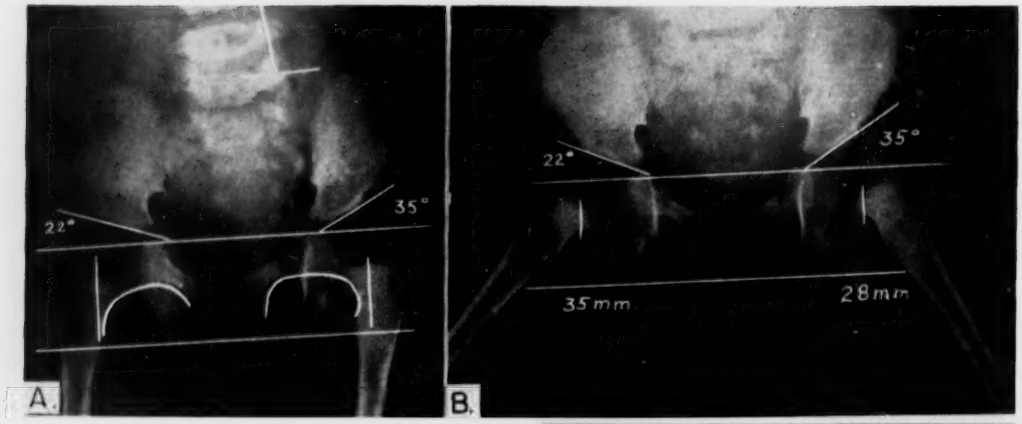
In the stage of subluxation (fig. 2A), the roentgenogram shows the epiphysis of the femoral head to ride high on the upper margin of the acetabulum. The triad in dysplasia and subluxation includes the shallow socket shortly after birth, displacement after the first year of life, and changes in the epiphysis of the femoral head at a later period. These usually occur when the infant begins to walk, but may be delayed for several years. As long as the femoral head remains within the modest limits of subluxation, fairly easy reduction is possible. Anterior displacement is often a subluxation and may be the transition from subluxation to anterior dislocation or from anterior to posterior dislocation.

Symptoms and signs

The early symptoms of congenital dislocation are few. The infant does not complain. The mother or nurse may notice asymmetry of the hips or lower extremities or foot deformities. The child may be late in walking and when he starts, may have a limp or a rolling gait. After walking starts he may complain of fatigue or pain, and may have a limp.

The early signs of congenital dysplasia may be (1) apparent shortening of the extremity, (2) persistent external or internal rotation of the thigh, (3) limitation of external rotation, (4) moderate flexion deformity of the hip, (5) limited abduction of the thigh when the hip is flexed to 90 degrees (fig. 5A), (6) contracture of the adductors. The absence of all these symptoms is no absolute proof that dysplasia is not present. Without some of these symptoms, the abnormality is probably of no significance.

With complete dislocation, the same signs may be present, plus telescoping (fig. 5B, C) of the femur in relation to the pelvis. This sign is pathognomonic of dislocation, fracture, or separation of the femoral head and



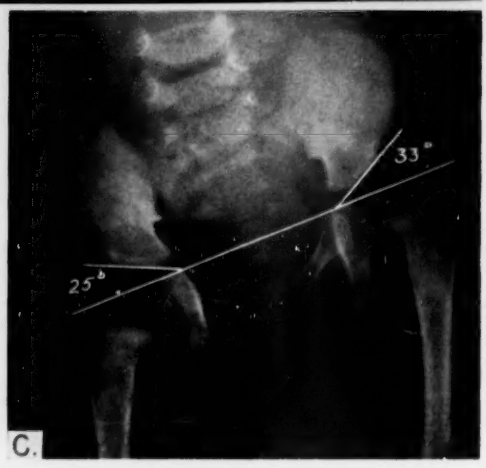


Fig. 4 A. Congenital dysplasia of the left hip joint. The acetabular angle is greater than that on the right. Shenton's line is irregular on the left. The left side of the pelvis is slightly higher than the right. The left femur is abducted because of soft tissue contracture.

B. With the extremities abducted, the acetabular angle on the left measures greater than that on the right. The distance from the symphysis pubis is diminished on the left because of contracture of the adductors.

C. The traction roentgenogram indicates absence of dislocation on the left. Constant use of an abduction pillow splint resulted in a normal acetabular angle within nine months.

neck. Telescoping is a reliable sign of dislocation, but it is not always demonstrable. Asymmetry of the folds on the inner aspect of the thigh may occur. Slight atrophy may by present. The femoral head may be felt anteriorly below the anterior iliac spine or posteriorly in the sciatic notch. The flexed thigh may show mild atrophy. The greater trochanter may be palpated higher on the dislocated side than on the opposite side. If the dislocation is bilateral, the perineum will appear unusually wide. Bilateral dislocation prior to walking is more difficult to recognize early because of the symmetrical findings.

Roentgen diagnosis

The roentgenogram may give a diagnosis when clinical signs and symptoms are indefinite. It fails to show the true condition of the socket, however, since much of the structure of the hip is cartilaginous, and erroneous conclusions can be drawn.

Standard technique must be emphasized. The roentgenogram (fig. 4A) should include both hips for the purpose of comparison, even though only one side seems to be affected. Both sides should be in exactly the same position at the time of exposure. The child should be held by two people, one holding the axillae and the other holding the extremities just below the knees, with the index finger controlling rotation. The first view can be taken with the child in the supine position, the pelvis symmetrical, with 10 degrees internal rotation of the patellae. The tube focus should be directed about one-half inch above the center of the symphysis pubis. The second view (fig. 4B) can be taken with the extremities abducted as far as possible, and the third view (fig. 4C) with upward push on the affected extremity and downward pull on the well leg. The traction can be reversed if a bilateral condition is suspected. The knee joints should be included

in the exposure in order to allow comparison of the femurs. These views will allow some estimate of the amount of anterior torsion in the upper femur. Stereoscopic roentgenograms may be necessary for demonstrating the depth of the acetabulum, but are not necessary in the majority of cases. The supporting effect of the acetabular roof may be gauged by an oblique view tangential to the ilium.

Other important considerations before ossification of the femoral epiphysis occurs are (fig. 4A) : (1) width of the space between the femur and the acetabulum, (2) the level of the femur in relation to the pelvis, (3) the depth and obliquity of the acetabulum. The normal angle of the acetabular roof relative to a horizontal plane is about 20 degrees. Any deviation from this measurement suggests the presence of dysplasia. The "acetabular index" is the same as the angle of the acetabular roof, and it is formed by a horizontal line passing through the triradiate cartilage and intersecting a line corresponding to the roof of the iliac portion of the acetabulum. It has been found that the average is about 27 degrees in newborns and 20 degrees at the age of 2 years. In an infant with an index above 30 degrees, dysplasia with subsequent dislocation is probable.

The age at which ossification of the capital epiphysis occurs is important. The average age of appearance is the fourth month in girls and the fifth to sixth month in boys. In congenital dysplasia or dislocation, its appearance may be two or three months late (fig. 3A), and if the condition is unilateral, the affected side may be small. This will give no indication of the size of the femoral head, but only the degree of its ossification. Another sign of some help in evaluating ossification is delayed ossification of the synchondrosis ischio-pubis. Another aid in orientation is the medial protruding margin of the femoral neck, which lies at the inferior margin of the acetabulum but is dislocated upward in cases of subluxation. Even before the appearance of the epiphyseal nucleus, Shenton's sign (fig. 4A) may be observed. This is a curved line along the internal contour of the pubic bone progressing to the obturator foramen which may be irregular, the lateral part of the line being elevated. This deviation indicates upward displacement of the femoral neck.

Fig. 5 A. In bilateral dysplasia of the hips, there will be limitation of abduction on each side. Limitation of abduction is the most constant sign found in dysplasia. When this is noted, a roentgenogram of the hip joints is indicated.

B. Telescoping of the femur in relation to the pelvis is present only if the acetabulum is shallow and the capsule stretched enough to allow dislocation. For this test the pelvis is stabilized, the hips and knees are flexed, and a downward thrust is made in an effort to force the femur out of the acetabulum.

C. With a downward push, the femur rides posteriorly. It is now behind the acetabulum. A click can be felt as the femoral head slips by the posterior rim of the acetabulum.

In a complete dislocation (fig. 6), it must be determined whether the head is anterior superior, lateral superior, or posterior superior. A lateral projection will determine this point. The extremity should be flexed 20 degrees, abducted 45 degrees, with the pelvis about 12 inches off the table.

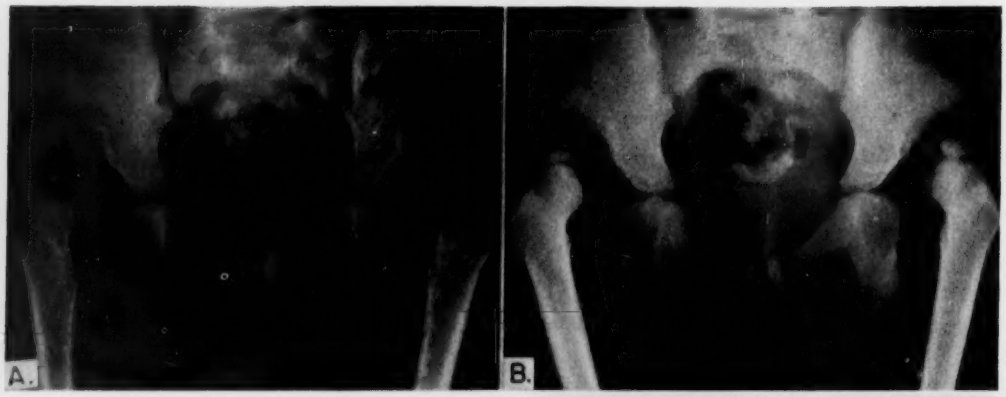


Fig. 6 A. Bilateral congenital dislocation of the hips at the age of 2. Note the shallow acetabula and the absence of the capital femoral epiphysis in spite of the age of the patient. The parents refused initiation of treatment.

B. Two years later (age 4) the capital epiphyses have appeared. The acetabula are shallow and the upper ends of the femora are in valgus with antetorsion. Treatment was then accepted.

C. Two years later (age 6) the reduction has been obtained by the closed method and supracondylar osteotomies completed. Note the irregularities about the capital epiphyses similar to those seen in Legg-Perthes' disease. The acetabula are shallow and stability is present.

Congenital Traumatic Dislocation of the Hip (Obstetrical Dislocation)

This entity can be differentiated from the usual hip dislocation on the basis of history, the presence of an associated fracture or ossifying hematoma, and by the roentgen findings. The roentgenogram may show dislocation of the femur, but the acetabulum will appear normal. Epiphysiolysis can occur, and again an adequate acetabulum will be present with displacement of the femur.

Congenital Coxa Vara

Early clinical diagnosis of coxa vara will prove difficult (fig. 7A). There is limitation of hip abduction and elevation of the trochanter in infancy. When the child begins to walk, there is a rolling gait and lumbar lordosis similar to that seen in the congenital dislocation. The roentgenogram will give the differential. The acetabulum is not shallow and the femoral head is well developed. As ossification proceeds, the broad zone of rarefaction through the femoral neck opposite the head is noted, the epiphysial line of the head is seen to be more vertical than normal, and the triangular prominent beak on the inferior medial aspect of the neck appears. This is thought to be due to the pull of the inferior capsule. The neck is short and imperfectly formed. As the child grows older (fig. 7B) the femur may have the same appearance as that seen in a fracture of the femoral neck. The trochanter may ride high as the child reaches adolescence, because the deficient neck becomes absorbed and true telescoping occurs. The femoral head usually remains viable.

Congenital Dislocation of the Patella

The security of the patella ordinarily depends on muscle balance and strength. Weakness of the vastus medialis, knock-knee deformity, a long patellar tendon, a shallow intercondylar notch, or a deformed patella may cause the patella to slip laterally over the femoral condyle. The roentgenogram will indicate the presence or absence of bone disease.

In recurrent or persistent congenital dis-

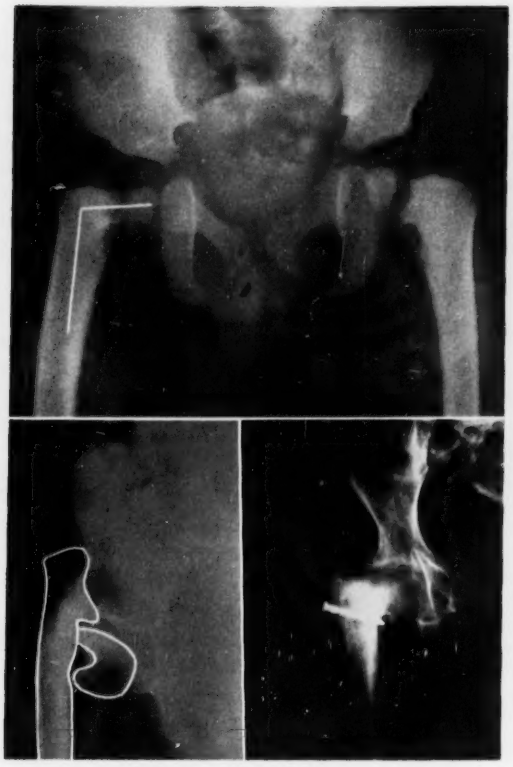


Fig. 7 A. (Top) Congenital coxa vara: The acetabular angles are not increased. The angle between the upper end of the femur and the shaft is 90 degrees instead of the usual 120 degrees. The epiphyseal line is wide. Note the triangular osteophyte at the inferior surface of the neck.

B. (Bottom right) Coxa vara has persisted and the shaft has gradually been displaced upward by weight bearing. The femoral head is viable but rotated. The acetabulum is not shallow. (Bottom left) Union has occurred following traction and open reduction. A subtrochanteric osteotomy will be necessary in order to correct the varus.

location, a deformed patella or a very shallow intercondylar groove will be seen. If the dislocation is persistent and irreducible, motion of the knee will be limited. If the lateral condyle of the femur is shallow, the roentgenogram will indicate the reason for the dislocation. If there is a deformity of the patella, femoral condyle, or the intercondylar groove, it is advisable to remove the patella.

Congenital Recurvatum (Anterior Dislocation of the Tibia)

Congenital recurvatum, the most common congenital deformity about the knee (fig. 8A), may be associated with limited flexion

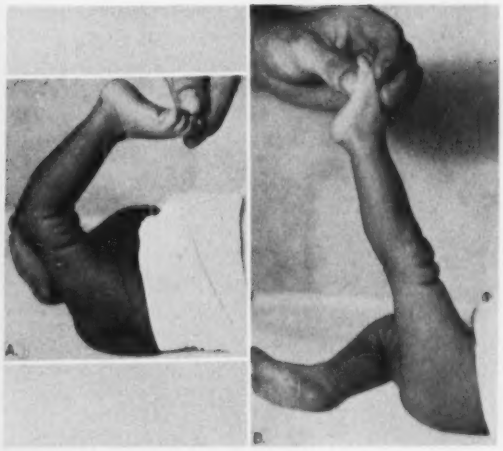


Fig. 8 A. Congenital back knee. This is the result of intra-uterine position. The anterior structures are contracted and the posterior structures are stretched. No vascular or nerve damage is present.

B. Gradual flexion by a plaster cast stretches the anterior structures and allows the posterior structures to contract. Six weeks following birth, there is normal knee motion. This infant also had acetabular dysplasia bilateral in conjunction with the knee deformities.

of the knee and other deformities about the foot and hip. The condition may be mild and bilateral in patients who have generalized relaxation of all ligamentous structures. In this group, the condition tends to recur, and even to persist into adulthood. The disability is only cosmetic.

The unilateral case may result from intrauterine position. Usually no deformity of the bone is noted. Complete correction can be attained in six weeks by gradually increasing flexion with the application of repeated plaster casts (fig. 8B). If the deformity is not corrected and weight bearing is allowed, knee flexion will be limited. There may be gradual depression of the anterior condyle of the tibia and elongation of the posterior condyle. Osteotomy will then be required to correct the deformity.

Bowlegs and Internal Torsion

Congenital bowing of the tubular bones may occur under the influence of prenatal forces. The lower extremities are involved more commonly than the upper, and congenital anterior curvature of one or both tibiae is the commonest deformity of this kind. Caffey has reported cases in which all four extremities were affected[1]. The greatest curvature is usually located near the middle third of the diaphysis of the affected bone.

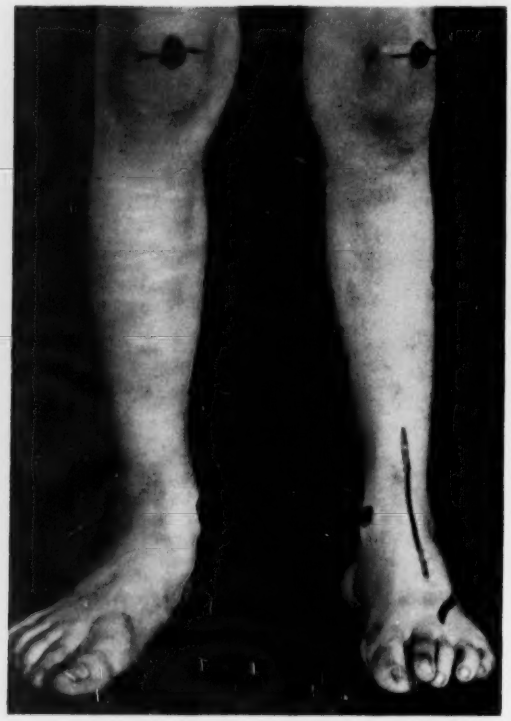


Fig. 9. Internal torsion of the tibia, congenital, is present. This accounts, in part, for the continued recurrence of the club foot. Roentgenograms showing the relationship of the tibia and fibula at the ankle joint can confirm the clinical diagnosis of torsion.

The chief roentgenographic features are bowing with abrupt curvatures of the humeri and the femora, the crest of the curve being located at about the mid-point of the diaphysis. Similar deformities may be found in the radii, ulnars, tibiae, and fibulae. On the concave side of the curvature there is conspicuous thickening of the cortex, while on the convex side the cortex is much thinner than normal. There is a tendency for the bowing to straighten out with time, but it may persist for years. Dimpling of the skin is an important aid in diagnosis.

When bowlegs are present the conditions to consider are (1) hereditary bowlegs, (2) acquired or functional bowlegs due to position, (3) vitamin D resistant rickets—rare, (4) true rickets—rare, (5) osteochondrosis tibia, (6) dyschondroplastic dwarf, (7) internal tibial torsion. The roentgenogram and clinical examination will give the essential information necessary for an accurate diagnosis.

Internal torsion of the tibia and fibula (fig. 9) may be associated with congenital clubfoot or bowing due to any of the mentioned causes. Roentgen examination will give some indication of torsion inasmuch as the anterior posterior view of the leg bones may resemble the lateral view. On the lateral roentgenogram, the interosseous space may be extremely wide. To be of some aid in making a diagnosis of torsion, both views must be taken with the patella straight up regardless of where the foot falls.

Knock-Knee

This deformity may be seen in conjunction with external torsion of the tibia and hyperextension of the knee. It is aggravated by flat feet and by anteversion and valgus of the upper end of the femur. The roentgenogram should be taken with the patellae straight up and the skin on the inner aspect of the knees just touching. If a large film is used, the distance between the malleoli can be measured and a record of progress obtained.

Congenital Pseudarthrosis of the Tibia and Fibula

The usual location for this skeletal defect is in the mid or lower portion of the tibia and fibula. The foot frequently shows progressive deformity, depending upon when the leg bones are corrected. The roentgenogram shows sharpening and sclerosis of the fragments with overriding (fig. 10A). The entire shaft is usually atrophied and the cortex thinned because of disuse. The posterior soft tissue structures are usually contracted and act as a bow-string, increasing the anterior deformity. Intramedullary fixation (fig. 10B) and cancellous bone grafts have been of great value in treating this kind of deformity.

Congenital Talipes Calcaneovalgus

In the calcaneovalgus foot, the plantar ligaments and supporting tendons are relaxed, but the lateral tendons may be sufficiently tight to prevent full equinus and inversion. The dorsum of the foot may touch the front of the leg. The inner border of the foot is prominent. This deformity is readily recognized in the infant, but treatment is frequently overlooked. Roentgen examination (fig. 11A) will show a plantar flexed talus and flattened arch, with dorsiflexion of the distal end of the calcaneus. Up and down roentgenograms of the foot indicate that subtalar and anterior talar motion is exag-

Fig. 10 A. Congenital pseudarthrosis of the tibia and fibula. Note the pointed ends of the tibia and fibula at the fracture area. The foot has become deformed secondary to hypogenesis of the calf muscle group.

B. Intramedullary fixation and cancellous bone grafts have resulted in union. The foot will rejuire additional reconstructive surgery. Note the vertical plane of the calcaneus.

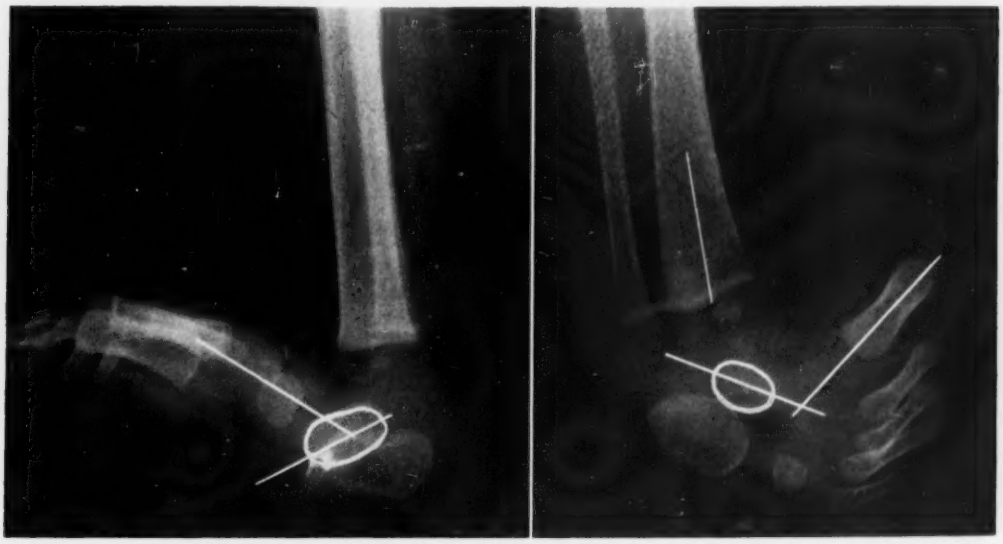


Fig. 11 A. Congenital calcaneo-valgus (foot). The talus is plantar flexed. Excessive dorsiflexion occurs in the mid-tarsal joints. The valgus deformity occurs in the subtalar joints. Plantar flexion is usually limited by contracture of the dorsal soft tissues. Early treatment can give complete correction.

B. Congenital club foot. The entire foot is in equinus. The heel and forefoot are adducted and inverted. The angle between the talus and the metatarsal shaft is an index of the severity of forefoot displacement.

gerated in dorsiflexion, but limited in plantar flexion.

The congenital calcaneus deformities are relatively simple to correct by several weeks of plaster-wedging. In spite of the correction, relaxation of the longitudinal arch may persist.

In the calcaneus deformity which becomes fixed, particularly that associated with muscle imbalance or deformity of the leg, the forefoot may gravitate into equinus and cavus will develop. Plantar flexion views will show the calcaneus directed upward.

Congenital Talipes Equinovarus

Important causative factors in this kind of clubfoot are hypogenesis of the musculature and anomalous tendon insertions, which lead to contracture of ligaments and other soft tissues followed by secondary bone change. The principal components of clubfoot are the forefoot adduction and inversion, the hindfoot adduction, and inversion, and the equinus of the entire foot. The talus is rotated internally and tilted downward. Varying degrees of foot rigidity may be present at birth. The prognosis depends upon the severity of the deformity and early, skillful, persistent treatment.

Roentgenograms of the infant's foot (fig. 11B) do not indicate the severity of the deformity because of the lack of ossification of the tarsal bones. Roentgenograms taken in various positions will show the relationship between the talus, which is the key bone, and the other sections of the foot. The anterior posterior view should be taken with the knees bent and the plantar surface of the foot on the cassette holder in whatever position it falls. The mother should then hold the foot and attempt to evert the heel and forefoot. A line drawn down the center of the talus and one down the metatarsal shaft will form an angle which gives an indication of the relationship between the forefoot and the talus (fig. 12A). If the metatarsal and navicular are medial to the talus, forefoot deformity is present. As correction is obtained,

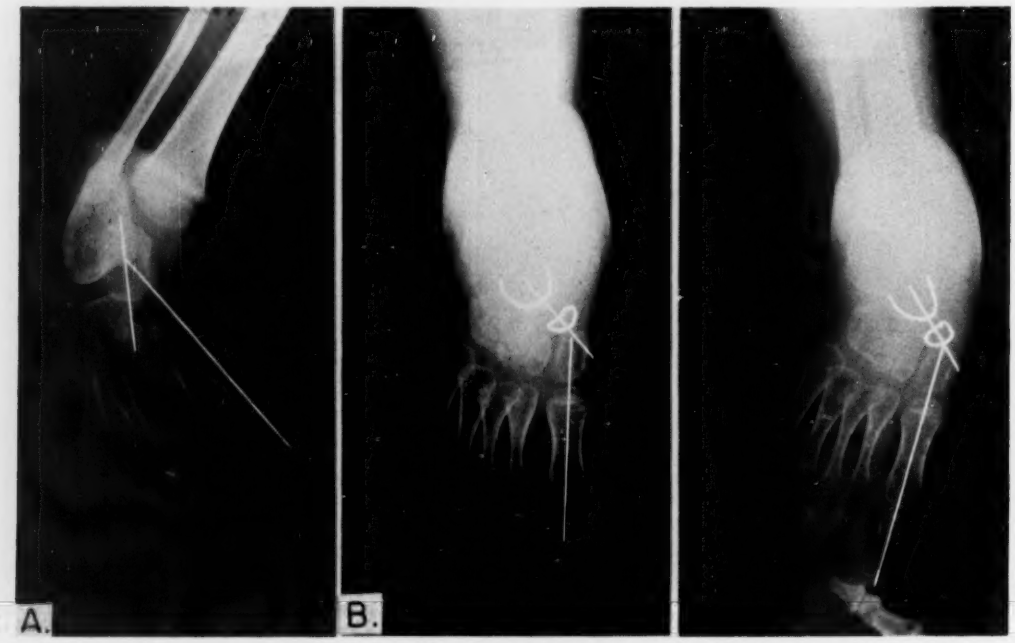


Fig. 12 A. The congenital club foot on the right shows the first metatarsal and cuneiform to be adducted. The navicular ossification center has not appeared.

B. Following several months of treatment, passive abduction allows reversal of the major angle, but the navicular has not yet been shifted lateral to the head of the talus. This indicated incomplete correction.

C. With forced abduction, the navicular does not move, indicating lack of correction at the major joint. Clinically, the foot may look adequately corrected, but because the navicular has not moved, the deformity will recur.

the angle between the medial metatarsal and the talus becomes smaller, until the lines almost coincide. When the angle becomes reversed, correction has been obtained.

It is important to determine the position of the navicular bone, since occasionally the correction will take place at the metatarsal-tarsal joints (fig. 12B,C), leaving the navicular on the medial aspect of the talus. If this is the case, recurrence of the deformity is certain. Surgical correction may be necessary in order to get the navicular toward the lateral side of the head of the talus. The relationship of the calcaneus to the talus can also be determined by the anterior posterior roentgenogram, with the foot held in the corrected or over-corrected position. The calcaneus should be directly under or even directed slightly lateral to the talus.

An anterior posterior view of the ankle joint will give some indication as to whether or not the talus is rotated internally in the ankle mortise or tilts laterally. The roentgen examination must be made with the patella straight up and with the tube directed at right angles to the ankle joint, with no regard for the position of the foot.

Congenital Talocalcaneal Bridge and Calcaneonavicular Bar

Talocalcaneal bridge

This deformity may be a complete synostosis between the inferior surface of the talus and the sustentaculum tali of the os calcis on the medial side of the foot. An accessory joint, overgrowth of bone, or a fibrous ankylosis may be present instead of the solid bone fusion. This complete or incomplete fixation of the talus to the calcaneus interferes with inversion and eversion in the subtalar joint. The lesion may be present at birth, but is seldom detected until the child has been active for several years. Diagnosis of calcaneovalgus foot may be made if the true deformity is not recognized. The lesion is not revealed in routine radiographic projections, but can be visualized by special projections. The roentgen findings can be seen by having the patient stand on the cardboard screen with the knees and ankles flexed about 30 degrees. The central roentgen beam is then projected downward and forward at an angle of 45 degrees. If fusion is present, it will be seen readily. A second change noted in the lateral radiograph is marginal new bone around the dorsum of the talonavicular joint.

Fig. 13. Calcaneonavicular bar. There is a synostosis between the navicular and the anterior calcaneus. The oblique roentgenogram shows this condition clearly. A rigid flat foot exists when this anomaly is present. A synostosis may also be present between the sustentaculum of the talus and the calcaneus on the inner side of the foot.

The limited motion resulting from congenital fusion leads to excessive stress on the talonavicular joint, causing development of osteophytes and cartilaginous degeneration.

The calcaneonavicular bar

This deformity may be either a synostosis or a fibrous fusion. The all-inclusive term, "calcaneonavicular bar" (fig. 13), will indicate whether there is complete or partial connection between the superior anterior portion of the calcaneus and the inferior margin of the navicular.

The lateral oblique view is used to determine the presence or absence of the calcaneonavicular bar, and the posterior superior oblique view is used to show the talosustentacular joint. Surgical correction may be necessary for either condition.

Summary

1. By early physical and roentgen examination most dislocations of the hip can be prevented.

2. Uncomplicated roentgen techniques are available as aids in the diagnosis, prognosis, and treatment of all congenital deformities of the lower extremities.

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THE DIAGNOSIS OF LEGG-PERTHES' DISEASE

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The early diagnosis of Legg-Perthes' disease is most important. It is often difficult. With early recognition of this affliction of the hip in children, however, much can be done to prevent the permanent anatomic deformity of a weight-bearing joint — a deformity which may result in crippling arthritis and may necessitate surgical fusion or arthroplasty of the hip in adult life.

General Description

Legg-Perthes' disease was first described by Legg[1] of Baltimore in 1910, and three years later Perthes[2] wrote his classic monograph. Other names such as coxa plana and osteochondritis deformans coxae juvenilis have been used to designate this disease, but none are more appropriate than Legg-Perthes, since none more truly describes the entity in all its aspects. It is a self-limited disease and runs a fairly characteristic course.

Although the etiology is unknown the pathogenesis is well understood. A hereditary factor has not been proved. The disease is uncommon but not rare, and is more likely to be encountered by a general practitioner or pediatrician in the early stages. It occurs more commonly between the ages of 4 and 10 years, and is more commonly seen in boys than in girls. It is more frequently unilateral than bilateral.

The pathologic lesion is a circulatory impairment of the head and neck of the femur, resulting in capsular soft tissue congestion and later in aseptic necrosis and degeneration of the femoral head. In varying lengths of time the avascular head is replaced with granulation tissue, and osteogenesis follows, with reconstruction of the bony components. This cycle may take from three to four years to be completed. Its course can be followed by means of serial roentgenograms, and the clinician thus aided in carrying out his treatment (fig. 1A through 1G).

Because of the early congestion of the soft tissue of the hip, roentgenograms taken in the early stages of the disease, even before destruction of the bony components is seen, lead one to suspect this condition. Thus we may institute measures early enough to prevent flattening of the softening femoral head, which will lead to permanent deformity of the hip (fig. 2). Residual deformity may often occur in spite of adequate treatment, but not to the degree seen with delayed treatment or none at all. Comparison between reported series of cases in which

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Fig. 1. (Case 1) A. October 20, 1950. This five year old girl had complained of pain in her left knee five days previously, and had a left-sided limp. Clinically, there was slight limitation of abduction and internal rotation of the hip. The knee was normal and roentgen examination was negative. The patient was put on bedrest.

B. November 14, 1950. At three weeks clinical limitation of hip motion had disappeared. The patient was allowed to walk about under observation, but still limped. In the roentgenogram the head appeared to be smaller on the left. The obturator foramen on the left was smaller, and the Waldenström sign was positive. The film is not diagnostic of Legg-Perthes' disease, but is very suspicious.

C. December 19, 1950. Two months after onset the roentgenogram showed definite subchondral bone absorption with early cavitation of metaphysis in medial portion. The head definitely appeared smaller and more sclerotic. Diagnosis was certain.

D. April 30, 1951. Note sclerotic bony nucleus of epiphysis at 6 months. Note extensive metaphyseal involvement.

E. January 7, 1952. At 15 months, the regeneration phase of epiphysis was well established. Note that only a small portion of sclerotic nucleus remained medially. The other portion had been absorbed and was being replaced with granulation tissue, which eventually was replaced with new bone.

F. April 15, 1953. Roentgenogram showing anterior posterior projection at 31 months. Recalcification had formed articular surface of head. Areas of decreased density remained and reossification was not complete. Note broadening of head and broadening of metaphysis.

G. April 15, 1953. Frog lateral projection. Here again note that the articular portion of head was well defined.

Fig. 2. (Case 2) April 20, 1953. This 27 year old white man had had intermittent discomfort in his left hip since the onset of Legg-Perthes' disease approximately 18 years ago. For three days before this roentgenogram was taken, he had had severe pain and was hardly able to walk. Clinically, there was pain at the extremes of any motion, with marked limitation of internal rotation and abduction of the left hip. Note flattening of the head of the femur with early degenerative changes along the acetabular rim and articular portion of the head. Note flattening of the roof of the acetabulum secondary to head deformity. Also note that the Waldenström sign and the small obturator foramen still persist.

Fig. 3. (Case 3) February 22, 1952. This six year old white boy presented a history of intermittent limping for about six months. He complained of pain in his left hip. The parents noted that the child seemed to limp first on one side, then on the other. The symptoms had not been severe enough for the parents to seek medical attention prior to the present examination. Clinically, there was limited abduction bilaterally but no limitation of rotation in either hip. Note severe bilateral involvement.

treatment was lacking or inadequate and cases given adequate treatment, have shown much less residual deformity in the latter[3]. Also, the earlier treatment is instituted, the better the prognosis, emphasizing again the importance of early diagnosis. Too often the disease is far advanced before the child is presented for examination, and the prognosis is then poor (fig. 3).

The first symptom is usually a limp, neither severe nor disabling but more noticeable with fatigue or increased physical stress. Pain may or may not be present; if it is, the site is more frequently the knee on the affected side than the hip. A history of trauma at the onset may or may not be obtained. Clinical examination usually shows muscle spasm about the hip, with resulting pain on extremes of motion and limitation of internal rotation and abduction to a varying degree. Occasionally, tenderness over the anterior portion of the hip joint is present. Relative anterior posterior thickening of the joint as an early sign has been described by Gill[3], and should be sought by palpation.

Early Management

When a child presents a clinical picture similar to that above, it is most important that a roentgenogram of the pelvis, including both hips, be taken. In the anterior posterior view, the hips should be held in internal rotation. A frog lateral view must also be obtained. The physician will occasionally be amazed to see a hip with well advanced degeneration (fig. 3), but more often no bony changes will be present and he must look for early roentgen signs caused by the early pathologic changes in the soft tissues. These early signs will be discussed later.

If no roentgen signs are demonstrated, it is still wise to prevent the child from walking until clinical signs disappear. If spasm is severe, skin traction should be instituted during this period. If on resumption of activities the clinical signs recur, bedrest should be instituted again. In any event the roentgen studies should be repeated after an interval of three to four weeks. Even when the symptoms have disappeared, another roentgenogram taken three to four weeks later will reassure the clinician he has not missed the diagnosis.

Early Roentgen Signs

Eyre-Brook[3b] in 1936 noted the earliest signs of Legg-Perthes' disease to be the increased density and early flattening of the epiphysis, and the increased depth and clar-

ity of the joint space. These changes are secondary to subchondral absorption, but may be seen before cavitation begins.

Waldenström[4] in 1938 stated that the first signs of bone resorption in this disease would be seen along the articular surface of the femoral head, and often only in the lateral view. This may give the appearance that the involved epiphysis is slightly smaller than the uninvolved. He also first described a roentgen sign which appears before bony changes are visible and is secondary to the congestion and edema of the articular soft tissue. He noted a relative increase in the distance between the acetabular floor and the medial border of the epiphysis on the involved side. This also causes a decrease in the width of the shadow caused by the overlapping of the ischial portion of the acetabulum and the femoral head. This sign is shown in figures 1B, 1C, and 2, but has also been seen in other cases where Legg-Perthes' disease did not develop (fig. 4). It is probably a sign of inflammation of the hip joint synovia, and not pathognomonic of Legg-Perthes' disease. Its presence, however, should certainly alert the physician to the possibility of serious hip joint disease.

Fig. 4. (Case 4) July 31, 1951. This patient was a 4 year old white girl with a history of limping and intermittent slight pain in the left hip. Clinical examination revealed spasm with limitation of internal rotation and abduction of the left hip. AP and lateral projections showed no bony changes. The Waldenström sign was positive, however, and the obturator foramen appeared smaller on the left side. Skin traction was applied to the left lower extremity, and bedrest was maintained for three weeks. The physical and clinical signs disappeared, as did the pain. Follow-up roentgenograms proved that this was not Legg-Perthes' disease. Laboratory examinations were negative, the tubercular test negative, and the final diagnosis was transitory synovitis, etiology unknown.

Blanchard[5] in 1917 first noted that in this disease the obturator foramen of the involved side is smaller than its opposite. He attributed this fact to atrophy of the bony ring. Others[6] have recently emphasized that this is an early sign of Legg-Perthes' disease. Kite and French[7] have proved that it is due to a "slight pelvic rotation" which the patient assumes in order to balance himself because of a lateral rotation of the involved leg. They also suggest that Waldenström's sign may be influenced by this rotation. This small obturator foramen is not pathognomonic of Legg-Perthes' disease either, but again should serve as a warning (figs. 1B, 1C, 2).

Since the signs described, which may be seen before subchondral absorption and decalcification of the head and neck are visualized, may also be present in other affections of the hip, one hesitates to make the diagnosis of Legg-Perthes' disease until true decalcification takes place. As stated before, however, these signs should alert the physician to the possibility of serious hip joint disease and lead him to follow his patient until the possibility is ruled out.

Treatment

Treatment should be begun as soon as the disease is suspected and discontinued only when the roentgen and clinical findings do not substantiate the diagnosis. The main object of treatment is to prevent weight-bearing, although different methods have been used to effect this. Traction with bedrest may be used in the early stages. After regeneration has begun, the use of crutches or an ischial weight-bearing brace until the femoral head is recalcified is the most generally accepted program of treatment.

Summary

The early diagnosis of Legg-Perthes' disease is important in the prevention of permanent disability of the hip. One must prevent weight-bearing when this disease is suspected in order to prevent anatomic deformity of the head of the femur. Early roentgen signs, occurring even before bone changes are visible, should alert one to the possibilities of serious hip joint pathology.

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AN APPRAISAL OF METHODS OF "IMPROVING" CEREBRAL BLOOD FLOW

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Cerebrovascular disease in its varying forms has gradually become increasingly prominent in mortality and morbidity statistics as the average age of the population has increased and as other diseases, such as the infectious diseases, have responded to modern methods of therapy. Reference is made particularly to cerebral arteriosclerosis, which usually manifests itself in three forms —(1) single large cerebral thromboses, (2) multiple small thromboses — "strokelets," and (3) diffuse cortical and subcortical vascular sclerosis with generalized cerebral atrophy. Undoubtedly, definitive methods of therapy will depend upon unraveling the mysteries of arterial disease itself and eliminating the causative factors. At present, however, the only possible method of attack would seem to involve alleviation of the primary defect—localized or diffuse cerebral anoxia—by increasing cerebral blood flow and hence the quantity of oxygen available to the tissues.

If such a goal be valid, two facts would seem to make the approach a hopeful one: (1) the arteries of the brain are not, strictly speaking, "end arteries," there being demonstrable anastamoses at the arterial, arteriolar, and capillary levels; (2) it would appear that cerebral blood flow and cerebral vascular resistance may be modified by certain drugs and procedures. A large number of drugs have been studied by various methods in both man and animals. It is my purpose to review only the more recent studies, which happen to be those carried out either by determination of changes in the arteriojugular oxygen difference, by direct measurement of carotid flow, or by the nitrous oxide technique of Kety and Schmidt[1]. It should be pointed out that an increase in cerebral blood flow or a decrease in cerebral vascular resistance detected by these methods by no means indicates that the agent producing this cerebral vasodilatation would necessarily be helpful in clinical situations; all such agents must be proven effective by actual clinical trial.

Certain features of the cerebral circulation and of the methods cited above should be mentioned as a background for the discussion to follow.

1. These methods will not indicate the total blood flow through the brain. The nitrous oxide technique is expressed in the number of cubic centimeters of blood per 100 Gm. of brain per minute. The arteriovenous oxygen difference technique does not give even this type of quantitation, as the oxygen uptake of brain tissue *in vivo* in any one individual is incapable of determination. Direct flow measurement (applicable only to animals) has usually been made on the carotid artery, with flow through the basilar artery uncontrolled.

2. These methods will not distinguish between the opening up of arteriovenous anastamoses and arteriolar relaxation. It is only the latter that will bring more blood to anoxic tissue.

3. They will not indicate redistribution of blood flow through the various parts of the brain.

4. The limits of error are quite high, (10 per cent in the case of the nitrous oxide method), which defect may obscure significant clinical changes.

5. Cerebral circulation shows a high degree of autonomy and is largely self-regulatory. The brain responds with a decrease in vascular resistance to any agent or procedure reducing the blood pressure. Hence, as many of the vasodilators lower systemic pressure, it is necessary for them to demonstrate a proportionately greater effect on the brain

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vessels than on the vessels of the body as a whole before they can be considered as specific vasodilators.

Experimental Studies on Man and Animals

Procedures known to produce vasodilatation (table 1)

Anoxia: Although not a practical method, cerebral anoxia itself will produce a pronounced increase (35 per cent) in cerebral blood flow in both humans[2] and animals[3]. One may therefore legitimately conjecture whether it is theoretically possible to produce further increase if the anoxia in a given area of the brain is not a sufficient stimulus. Whether the increase in cerebral blood flow is a local effect on the vessels or is due to reflex activity from specific receptor areas in the brain is not known. It is independent of the carotid body mechanisms.

Increase in carbon dioxide tension: Breathing air that contains a high percentage of carbon dioxide, 3.5 per cent or higher, produces pronounced increase in cerebral blood flow without changes in blood pressure[2,3,4]. This may amount to as much as 175 per cent with greater concentrations of carbon dioxide. The carbon dioxide tension may also be increased by administering sodium bicarbonate solution intravenously. This method tends to separate the effects of change in hydrogen ion concentration from those due to increase in carbon dioxide tension, and indicates that the latter is by far the more important of the two factors in the increase in cerebral blood flow. Sodium bicarbonate, 3 per cent in 1,000 cc. of fluid administered over a period of 30 minutes, produced increases up to 50 per cent in normal volunteers[5]. It is of interest that increased carbon dioxide tension, in contradistinction to other vasodilators of the brain, actually decreases blood flow through the muscles[4b].

Papaverine: Shenkin[6], in studies of patients with cerebral disease, and Joyner and colleagues[7], in normal human volunteers, came to somewhat different conclusions concerning papaverine. Shenkin found that it produced a decrease in mean arterial blood pressure and a fall in cerebrovascular resistance, with little change in blood flow. Joyner, however, giving a somewhat higher dose (180 mg.) intravenously, demonstrated an increase of 24 per cent in cerebral blood flow, a decrease of 28 per cent in cerebrovascular resistance, and a decrease of 12 per cent in mean arterial pressure. It should be pointed out that all experimental studies have employed large doses of papaverine intravenously, whereas in the clinical studies the drug has been administered orally.

Table 1

Procedures Known to Increase Cerebral Blood Flow Under Experimental Conditions

Method	Subject
Anoxia	Man and Animals
Carbon Dioxide Inhalations (3.5%)	Man and Animals
Sodium Bicarbonate (+3% I. V.)	Man
Papaverine (I. V.)	Man
Ergotamine tartrate (I. V.)	Dog
Dihydroergotamine (I. V.)	Dog
Histamine (Intracarotid)	Monkey
Nitroglycerine (Intracarotid)	Monkey
Aminophylline (Intracarotid)	Monkey
Caffeine (Intracarotid)	Monkey

Histamine: That histamine is a powerful vasodilator is unquestioned. Studies done by direct observation of pial vessels and summarized by Wolff[8] showed pronounced vasodilatation. Dumke[3], by intracarotid injection of small quantities, demonstrated large increases in blood flow in the monkey brain; but when give intravenously, the drug is found to drop the blood pressure to such an extent that the over-all effect is essentially nil[9]. Shenkin[6] found essentially the same results, no over-all effect, until he analyzed his cases further and pointed out that those showing a fall of less than 15 per cent in mean arterial pressure had a significant rise in cerebral blood flow.

Nitroglycerine: In the case of this drug also the result seems to depend upon whether the agent is given by the intracarotid or the intravenous route. The only available study indicates a large increase in cerebral blood flow when the nitroglycerine is placed directly in the cranial arterial circulation, but no effect or an actual decrease when it is given intravenously. Its clinical applications are not likely to be important.

Ergotamine and dihydroergotamine: Studies by Abreu and others[10] in the dog demonstrated a surprising finding—very large increases in cerebral blood flow, up to 83 per cent for ergotamine and 135 per cent for dihydroergotamine, when given intravenously. In the monkey, Dumke[3] was unable to show this. A failure to produce intracranial vascular constriction might be suspected from studies by Wolff and his group[11] in which administration of ergotamine produced a rise in cerebrospinal fluid pressure

Table 2
Procedures with Doubtful Effects on Cerebral Blood Flow

Method	Subject
Histamine (I. V.)	Man and Monkey
Stellate ganglion block	Man and Animals
Stellate ganglionectomy	Man and Animals
Xanthine derivatives (I. V.)	Man and Animals

Table 3
Procedures with No Apparent Effect on Cerebral Blood Flow

Method	Subject
Procaine (I. V.)	Man
Priscoline (I. V.)	Man
Nicotinic Acid (I. V.)	Man
Ethyl Alcohol (I. V.)	Man

and no change in amplitude of pulsations. Ergotamine has also proved ineffective in intracranial vascular headaches such as those associated with fever. It is unlikely that these agents will have clinical significance because of their side effects.

Procedures with questionable effects (table 2)

Xanthine derivatives: Aminophylline and caffeine given intra-arterially in the monkey produces a definite rise in blood flow as determined by arteriovenous oxygen differences, but intravenously has little effect[3]. This observation was confirmed by others[12] in the case of aminophylline given intravenously to human subjects. Caffeine given intravenously actually produced cerebral vasoconstriction in humans[6].

Stellate ganglion block and stellate ganglionectomy: The situation regarding the effectiveness of these procedures is quite confusing. Earlier studies showed definite changes in pial vessels with vasoconstriction during stimulation of the cervical sympathetic nerves and dilatation following section[8]. These changes, though not large, were indisputable. Whether, such dilatation indicated arteriolar relaxation and increase in cerebral flow, however, cannot be decided by reference to the more recent studies using the nitrous oxide technique in human subjects. Shenkin and others[13] claimed a definite increase in cerebral blood flow and a decrease in cerebral vascular resistance following bilateral stellate ganglionectomy. However, the same authors using bilateral stellate procaine block[14], Scheinberg[15] using unilateral stellate procaine block, and Marmel and others[16] found no significant effect. Scheinberg and Joyner[4c], in a critical evaluation of studies up to that time, expressed the opinion that the figures given by Shenkin[13] could not be considered statistically significant. This will discussed further under "Clinical Applications."

Procedures known to be ineffective (table 3)

Intravenous procaine[9], intravenous Priscoline[17], nicotinic acid[18], and ethyl alcohol[19] have not been found to have any effect on the cerebral circulation when tested by the nitrous oxide technique, although they are considered potent vasodilators of vessels elsewhere in the body. Loman and others[18a] felt that 1 of the 4 patients studied showed some increase in cerebral blood flow following the intravenous injection of nicotinic acid, but this observation is unsupported.

Clinical Trials of Presumed Vasodilating Procedures

The following procedures have been used clinically in the treatment of occlusive cerebrovascular disease.

Stellate ganglion block[20]
Papaverine (orally)[20h]
Histamine (intravenously)[20i]
Carbon dioxide inhalation[20j,k]
Sodium bicarbonate (intravenously)[20k]

In spite of the frequency of cerebrovascular accidents, comparatively little is known concerning the pathogenesis of these states. It is presumed that when an occlusion involves a large enough vessel, there will be an area of total anoxia and consequently tissue death within a short time (probably less than two or three minutes in the cerebral cortex, which is very sensitive to oxygen deprivation). At the same time there is a much greater disturbance of function than can be accounted for by the area involved. Monakov has termed this initial shock-like state "diaschisis." One need only mention the temporary blindness which occasionally follows occlusion of one posterior cerebral artery, and which subsides shortly to leave a residual homonymous hemianopia.

In addition to total anoxia and tissue death, there must be a surrounding area of hypoxia and loss of function in still viable tissue, because of the presence of vascular spasm in both the occluded vessel and collateral channels. The presence of spasm has been inferred from the analogy to spasm occurring elsewhere under similar circumstances—that is, embolism of a femoral artery associated with severe spasm, further

embarrassing the circulation of the limb. Evidence has also been observed during surgical operation when the vessels are mechanically or electrically stimulated. Diapedesis of cells and extravasation of fluid through anoxic capillaries shortly produces cerebral edema and further aggravates the initial insult.

Recovery from an acute cerebrovascular accident may be postulated to depend upon the following factors: (1) recovery of the brain from the initial shock-like state produced by the sudden disruption of neural pathways; (2) relaxation of presumed spasm in proximal segments of the occluded artery and other vessels in the neighborhood; (3) dilatation of collateral arterial channels; (4) subsidence of the local reactive edema associated with the anoxia; (5) appearance of latent function of accessory motor and sensory areas—for example, utilization of mechanisms in the hemisphere contralateral to the occlusion. Theoretically, increasing cerebral blood flow could be effective in the second, third, and possibly the fourth of these methods of recovery, if the brain tissue is still viable.

Concerning the presence of vascular spasm *per se* and in acute cerebrovascular accidents, there has been much debate. Reference may be made to Pickering's analysis[21] deprecating the notion of spasm, Russek's reply[22], and finally Denny-Brown's complete analysis of the present status of this concept[23].

Stellate ganglion block

Stellate ganglion block was first suggested as a method of therapy in 1936 by Leriche[20a]. Several groups of investigators have reported favorably: Risteen and Volpitto[20b,c] claimed favorable results in 6 of 8 cases, Mackey and Scott[20d] in 9 of 14, Gilbert and de Takats[20e] in 19 of 25, and Naffziger and Adams [20f] in 59 per cent of a large series. The procedure is to block the stellate ganglion on the side of the cerebral lesion with 1 to 2 per cent procaine usually daily, but as frequently as every six to eight hours. Improvement should occur within 15 minutes, although it need not be maintained; and if the patient relapses, another block is considered necessary. Millikan and others[20g], however, recently reported a total of 87 patients with acute cerebrovascular accidents who were followed to discharge or death. Twenty-one of these were treated with repeated stellate ganglion block, and no effect was noted. In fact, the results were somewhat better in the untreated group. The discrepancy was explained by these authors as resulting from the failure of previous investigators to recognize the natural course of the cerebrovascular accident, which is one of spontaneous improvement in a considerable number of cases. Shenkin[13] performed bilateral stellate ganglionectomy on 7 patients, of whom 2 had cerebrovascular disease, and obtained no clinical improvement although there was an increase in cerebral blood flow and decrease in cerebrovascular resistance.

Papaverine

Clinical trials using papaverine hydrochloride have been reported by Russek and Zohman[24]. Forty-six cases of vascular disease including hypertensive encephalopathy and cerebral thromboses were treated with papaverine in amounts of 0.25 to 1.2 Gm. a day in divided doses, each usually with small amounts of phenobarbital, 0.015 to 0.030 Gm. by mouth, the latter being felt to enhance the effect of the papaverine. Benefit was claimed in a large number of cases, but to date this has not been confirmed or denied by independent investigation. Basis for the use of papaverine is found in the observations of Scheinberg[9], previously cited.

Histamine

Furmanski and others[25] also claimed benefit in acute occlusive vascular disease by treatment with intravenous histamine. Histamine diphosphate, 5.5 mg. in 1,000 cc. of normal saline or 5 per cent dextrose, was given at such a rate as to produce flushing without a significant drop in blood pressure. In 30 of 50 patients treated, more than 75 per cent improvement was obtained. Results were said to be better if (a) the degree of initial dysfunction was mild, (b) there was no disturbances of consciousness, (c) the patient was in a younger age group, and (d) therapy was begun within six hours of the accident. It should be pointed out that patients falling in these categories would be likely to improve spontaneously. It is unfortunate that no systemic study of cerebral blood flow was carried out in these patients, as it would be valuable to correlate changes in cerebral resistance with possible clinical improvement.

Increase in carbon dioxide tension

On the basis of experimental studies this method would certainly be expected to produce improvement, for the effect of breathing carbon dioxide in higher than physiologic concentrations and of bicarbonate given intravenously is the most unequivocal of all the cited studies. Carbon dioxide dilates the cerebral vessels without lowering the blood pressure, or even increasing it. Johnson[26] recently used an ingenious method involving rebreathing from a common paper bag to obtain vasodilator effects. In a group of 13 patients with transient episodes of neurologic deficit ascribed to cerebral angiospasm, good results were obtained in 9. The rebreathing was carried out for 15 to 30 seconds in five to ten forced breaths, which was sufficient to produce the described improvement. It is presumed that significant hypoxia would scarcely develop in this time. This represents a practical approach which surely should be given more extensive trial, as the difficulties with carbon dioxide inhalation rests principally with the bulky equipment not easily available in an emergency away from a hospital. Patterson and Heyman[27] tried both 3 per cent sodium bicarbonate and rebreathing with 3.5 per cent carbon dioxide. Moderate increases in cerebral blood flow were produced by the bicarbonate in 5 patients without clinical improvement. Carbon dioxide in 5 per cent concentration caused excessive dyspnea and hypertension, and could not be tolerated. However, 3.5 per cent could be tolerated without side effects during 30 to 60 minutes with apparent improvement in muscle strength, coordination, and speech in 12 patients. Only moderate increase in cerebral blood flow was produced by this method, however, and less response was found in patients with diseased vessels — that is, arteriosclerosis — than in normal controls. Sufficient data are not available to arrive at any final conclusion at this time.

Summary

Many substances have been found to decrease the cerebrovascular resistance and increase cerebral blood flow under experimental conditions. Increased carbon dioxide tension is the most potent agent found to date, but clinical trials are as yet few and inconclusive. While histamine is a potent vasodilator when applied to the cerebral vessels by the intracarotid route, it is still not clear whether it has any significant over-all effect, because of the depression of systemic arterial blood pressure which tends to cancel out its cerebral effect. It is also not clear whether it is necessary to have an increase in cerebral blood flow, as the vasodilation might conceivably result in redistribution of blood.

Clinical studies with papaverine and stellate ganglion block, as with histamine, have given conflicting results which are difficult to reconcile. The most important defect in those studies professing improvement by these methods are lack of control groups. Further, factors of motivation and the tendency of acute cerebral thromboses and embolism to slow spontaneous improvement make evaluation of any therapeutic attempt extremely hazardous.

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Clinical medicine: The extraordinary advances made in recent years in the prophylaxis, diagnosis and treatment of disease have been achieved mainly by painstaking research in the laboratory and applied to the problems of internal medicine. The bedrock, however, of clinical medicine remains as always—a careful history and a careful physical examination. This fact, I think, is not sufficiently emphasized either in the teaching or practice of the present day. After all, the average patient comes to the consulting room either because of definite symptoms or for a routine check-up, instigated often by a vague fear of underlying disease. It is tempting frequently to take a short-cut by ordering laboratory examination after an all too perfunctory history and physical examination. This tendency is stimulated, I feel, by the rapid rise of medical and hospital insurance. It is true that sometimes special laboratory reports may be absolutely decisive in diagnosis but, in the main, they should be integrated and interpreted only in the light of the previous careful history and physical examination.—Hunter, C.: Remarks on Chronic Ailments by a Retired Internist, Canad. M.A.J. 69:23 (July) 1953.

It is humiliating that an optimistic quack (to say nothing of a Christian Science disciple) often does more good than a conscientious but pessimistic physician.—Hunter, C.: Remarks on Chronic Ailments by a Retired Internist, Canad. M.A.J. 69:26 (July) 1953.

THE USE OF CONCENTRATED HUMAN SERUM ALBUMIN IN THE MANAGEMENT OF INCREASED INTRACRANIAL PRESSURE

A Preliminary Report

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The alteration of brain bulk and cerebrospinal fluid pressure by the intravenous administration of hypertonic solutions is a well known phenomenon. The clinical application of this principle has been widespread, although its value has been controversial. This paper is a preliminary report on a re-evaluation of a frequently used hypertonic agent, concentrated human serum albumin.

History

The modern concept of the physiology of intracranial volume has an interesting history[1], dating probably from the hypothesis of Alexander Monro the younger in 1783. His doctrine of the fixed imcompressible bulk and constant vascular content of the brain was furthered by Kellie in 1824 and Abercrombie in 1828, and probably not questioned until 1843. At that time Burrows emphasized the importance of the cerebrospinal fluid and extravascular serum, and stated that the amount of intracranial blood was obviously diminished by systemic bleeding: "Whether the vacated space is replaced by serum, or resiliency of the cerebral substance under diminished pressure, is another question."

This observation, with later work by others, has resulted in the theory that the total volume of the cranial contents is relatively fixed, but has the capacity for change in any one of the three chief elements concerned.

In 1919 Weed and McKibben[1] made a classic contribution through investigation of a chance observation. In determining whether alterations occurred in the sodium chloride content of the cerebrospinal fluid following

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intravenous injections of hypertonic salt solutions, they noted that within a short time after injection, cerebrospinal fluid could not be obtained when the subarachnoid space was entered. Then followed their observations that the intravenous injection of an isotonic solution (Ringer's) caused no lasting change in the pressure of the cerebrospinal fluid, but that intravenous injection of a hypotonic solution (distilled water) was followed by a marked and sustained rise in the pressure (fig. 1), and that intravenous injections of hypertonic solutions (concentrated sodium chloride, sodium bicarbonate, sodium sulfate, and glucose) caused an initial rise in the pressure of the cerebrospinal fluid, followed immediately by a marked fall in the pressure, often to below zero.

This conclusion was immediately followed by their observations on the experimental alteration in brain bulk by these solutions, and the hypothesis that the underlying process was concerned with osmotic changes in the blood. Of further interest was the notation that change was also related to the potential elasticity of the animal used, alterations in brain volume being less marked in old cats than in young animals.

In the same year Haden[2] reported the first clinical use of hypertonic solutions with "symptomatic improvement" in cases of meningitis.

In short order, Cushing and Foley[3] and Sachs and Malone[4] applied these principles to the treatment of surgical patients and reported "striking results." Foley and Putnam[5] noted a similar lowering of cerebrospinal fluid pressure and diminution of brain volume following the enteral ingestion of hypertonic salt solutions and demonstrated persistent lowering from 6 to 10 hours later. In addition to a decrease in brain volume, they felt that there was a new ratio between secretion and absorption of the cerebrospinal fluid with some reverse flow through the choroid plexus, as well as increased absorption over the surface of the brain.

There followed an enthusiastic use of hypertonic solutions to combat increased intracranial pressure following brain injuries, which was tempered by the warning of Browder[6] in 1930 of its dangers in cases of recent blood vessel injury with bleeding.

Dextrose and sucrose

Then Jackson, Kutsunai, Leader, and Joseph[7] reported the results of the use of hypertonic dextrose solutions in 20 cases of acute cranial injury, noting immediate increase in pressure in one half of the cases and a slight temporary reduction in the others. There was a secondary increase in pressure in all cases after 15 to 30 minutes. In experimental animals they noted a primary fall in pressure followed by a secondary rise which they felt was due to absorption of dextrose by the brain cells with secondary edema. They further discussed the dangers of the use of hypertonic saline in human subjects — convulsions, respiratory difficulty, and death—felt to be due to disturbance of the intracellular sodium ion content with further cell swelling, particularly in cases with pre-existing cell injury.

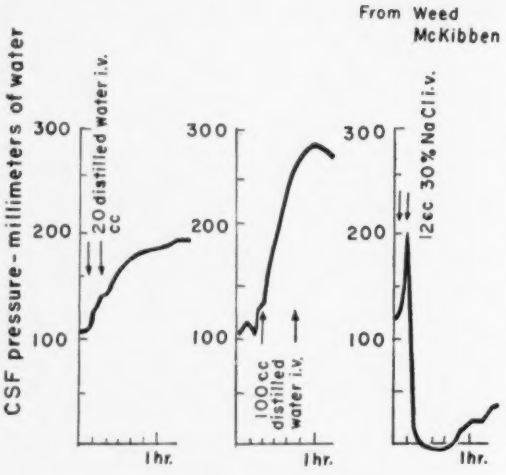

Fig. 1. Cat experiment.

The late rise in cerebrospinal fluid pressure after the use of dextrose in human beings with non-traumatized brains was further demonstrated by Masserman[8]. This was followed by observations by Bullock, Kinney, and Gregerson[9] on the use of sucrose for reducing pressure without secondary elevation, and demonstration by Gregerson and Wright[10] that sucrose, in contrast to dextrose, did not appreciably pass the blood barrier. Bullock, Gregerson and Kinney[11], Masserman[12] and Hahn, Ramsey and Kohlstaedt[13] presented additional cases in which sucrose had been used without untoward effect, and demonstrated decreases in pressure for about four hours.

Concentrated serum

In 1936 Hughes, Mudd, and Strecker[14] first reported (published in 1938) the use of concentrated solutions of human serum for the reduction of intracranial pressure. It was felt that this material, by remaining in the blood stream without rapid diffusion or metabolism, would exert a continued osmotic effect. Using 50 to 100 cc. of human serum of four times normal concentration given intravenously and a multiple lumbar puncture technique, they demonstrated reduction of increased intracranial pressure for relatively long periods. On the basis of comparative studies in a few normal human subjects, they felt this substance was more effective than a solution of sucrose. The maximum lasting effect from the osmotic pressure of the proteins administered was computed to be 38 mm. of water. An additional large increment due to the associated concentrated electrolytes was felt to contribute to the initial drop in pressure but to have no lasting effect.

Wright, Bond and Hughes[15], in a similar study in dogs, using dog serum of four times normal concentration showed appreciable reduction in cerebrospinal fluid pressure when doses of 4 or 8 cc. per kilogram were given, but less striking results with 1 and 2 cc. per kilogram increments. With 8 cc. per kilogram, reduction was still maintained after 20 hours in one case.

In 1941 Turner[16] introduced the use of human serum in the management of head injuries. He reported the use of intravenous injections of 40 cc. of human serum of five times normal concentration in 6 cases of recent closed head injury. These were cases of headache with cerebrospinal fluid pressure from 200 to 300 mm. of water in which dehydration, magnesium sulfate, and ordinary analgesics had failed. By means of repeated lumbar punctures, he demonstrated falls in cerebrospinal fluid pressure in 5 cases. The percentage drop was, however, quite variable: in 70 minutes in 4 cases, ranging from 18 to 71 per cent (50 to 195 mm.); in three hours in 3 cases, from 10 to 73 per cent (20 to 200 mm.), and in six hours in 3 cases, from 0 to 60 per cent (0 to 165 mm.). It is stated that the clinical results were good, with relief of headache and no untoward results in 4 cases. By hematocrit studies blood dilution was demonstrated, presumably as a result of osmosis.

Although clinical use has continued, except for an isolated case reported by Cole[17] with only general observations, there have been no further reports in the English literature on the efficacy of this substance.

In 1943 Bragdon[18] reported a comparative study for the Association for Research in Nervous and Mental Disease. In noting the alterations in craniocerebral injuries following the use of dextrose, sucrose, sorbital, sodium chloride and caffeine, he stated that the effect of dehydrating agents on the cerebrospinal fluid pressure in the treatment of head injuries is quite unpredictable and that there is little justification for their use.

Of perhaps related interest is the work of Shenkin, Spitz, Grant and Kety[19], which demonstrated no change in cerebral metabolism by reduction of increased intracranial pressure, either by ventricular puncture or by the use of intravenous hypertonic glucose.

Preliminary Report

Materials and method

With this highly controversial background we are presenting isolated clinical and experimental cases as a preliminary report. The hypertonic agent used in this study is concentrated human serum albumin (salt poor) supplied by the American National Red Cross through the E. R. Squibb and Sons Laboratories. A unit consists of 25 Gm. of serum protein in 100 cc. solution and is considered the equivalent of 500 cc. of plasma (5 x concentrated).

The experimental material consists of young cats anesthetized with sodium amytal. Intravenous solutions were introduced via venoclysis in the hind leg, and cerebrospinal fluid pressures were measured by continuous cisternal puncture and a water manometer. Compensated initial pressure was generally found to be 40 to 60 mm. of water, and time for this compensation was allowed before introducing the experimental increments. The dramatic lowering of the cerebrospinal fluid pressure by hypertonic saline in the nontraumatized animal was again illustrated, and the elevation of pressure by hypotonic solution (distilled water), which Weed and McKibben[1] had demonstrated for the duration of their 80-minute experiments, was found to persist for hours.

Results

Using concentrated human serum albumin for isolated acute experiments, we have

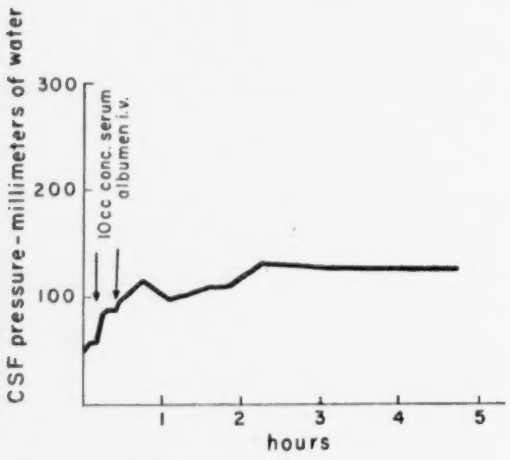

Fig. 2. Cat experiment.

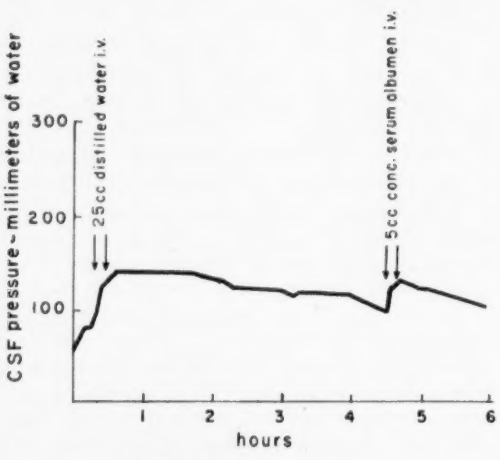

Fig. 3. Cat experiment.

noted none of the usual features of serum reaction. But neither have we demonstrated the lowering of the cerebrospinal fluid pressure as described by Wright and others[15] in their use of animal serum.

Figure 2 demonstrates a persistent elevation in pressure following the administration of a dosage equivalent to 8 cc. per kilogram. Administration of smaller increments has given similar curves.

In an attempt to duplicate the conditions of an increased cerebrospinal fluid pressure, we have caused elevation of pressure by the use of intravenous water. Subsequent administration of concentrated human serum albumin has caused no striking alteration in the trend of the curves as demonstrated in figures 3 and 4, although some lowering was suggested in one experiment (fig. 5).

The response in human cases has also been unpredictable, although generally more in keeping with an anticipated lowering in pressure. These are illustrated by figures 6 and 7. These are continuous pressure determinations for two hours and then isolated second punctures as indicated.

A representative case with no response is illustrated by figure 8. One wonders if the high cerebrospinal fluid protein could contribute to the lack of response in this case. It is interesting that none of these patients have shown any definite clinical response that could be attributed solely to the administration of the hypertonic solution. As indicated by the S and P notations on the figures, there was no significant alteration in the systolic blood pressure or pulse. In other cases we have felt that there has been some degree of clinical response, such as improvement in the character of the respirations and in one case rather dramatic relief of an acute decerebrate posture.

Comment

Using the method of calculation described by Hughes and others[14], a unit (100 cc.) of five-times concentrated human albumin would have an osmotic pressure of approximately 95 mm. of water when added to the blood volume of an adult. The use of 100 cc. of the concentrated serum would represent a dose of about 2 cc. per kilogram. By the intravenous injection of one unit in adult human beings with increased cerebrospinal fluid pressure, significant lowering of pressure can occur but is not necessarily predictable. When it does occur, the lowering appears to persist. In preliminary experiments these results have not been duplicated in animals; previously reported experiments of others using concentrated animal serum have shown some lowering with dosages of 4 to 8 cc. per kilogram, but the immediate results are much less striking than other experiments with other agents. These earlier experiments may indicate that the usual administration of one unit (100 cc.) in humans is inadequate and that doses of 200 to 400 cc. (4 to 8 cc. per kilogram) may be more effective.

Nevertheless, the work of Shenkin and colleagues, failing to disclose alteration in cere-

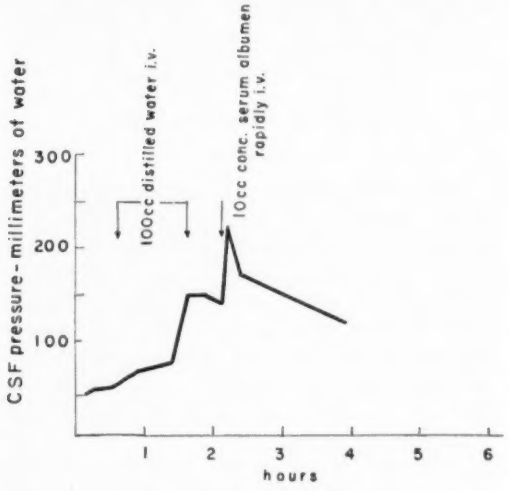

Fig. 4. Cat experiment.

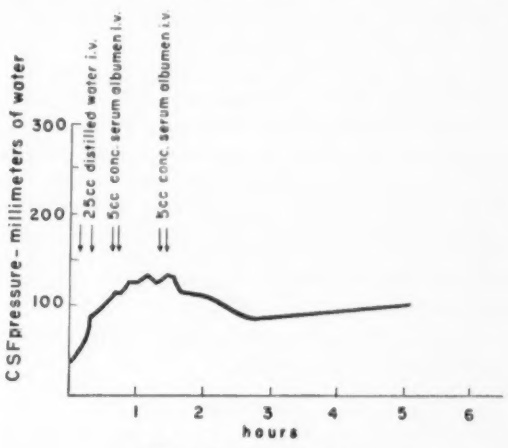

Fig. 5. Cat experiment.

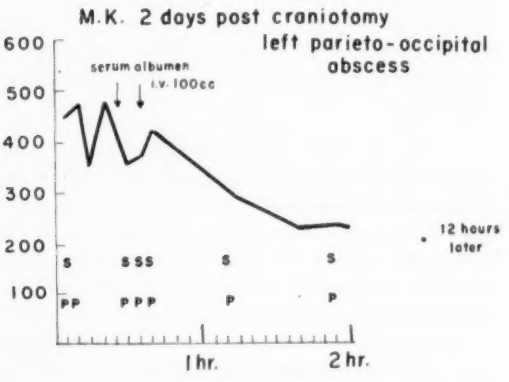

Fig. 6. Cat experiment.

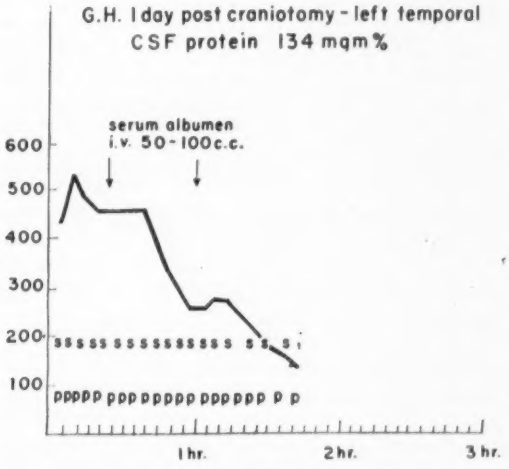

Fig. 7. Cat experiment.

bral metabolism as shown by their methods, and the recent works of Hass and Taylor[20] suggesting that decompression over the involved area is the only measure of lifesaving value in severe focal, experimental cerebral edema would cast doubt on the significant therapeutic worth of hypertonic solutions except as an adjunct in therapy.

Summary

A brief review of the history of the use of anisotonic solutions in alteration of cerebrospinal fluid pressure has been given, with a preliminary report on the effect of concentrated human serum albumin under experimental and clinical conditions.

Five-times concentrated salt-poor human

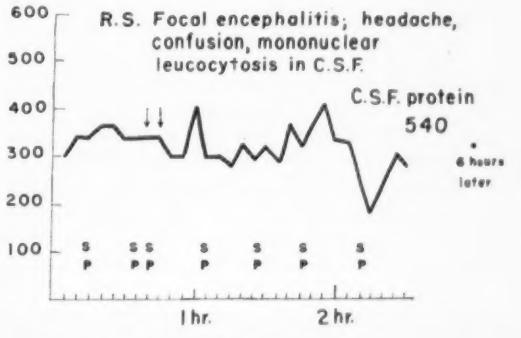

Fig. 8. Cat experiment.

serum albumin has a frequent but unpredictable property of lowering an elevated cerebrospinal fluid pressure in humans. It appears that the response is relatively slow compared with other methods of lowering pressure, but may be prolonged. Clinical response, attributable to the agent alone, is also unpredictable. Lowering of cerebrospinal fluid pressure in experimental animals by comparable or increased dosages of human albumin has not been demonstrated.

Further studies are indicated before final conclusions are reached.

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THE INDICATIONS FOR CARDIAC CATHETERIZATION AND ANGIOCARDIOGRAPHY

JAMES V. WARREN, M.D.

DURHAM

The increased scope of surgical procedures on the heart and circulatory system has brought to the practice of medicine the necessity of carrying out more accurate diagnostic procedures in many patients with cardiovascular disease. Studies with the various special techniques, such as cardiac catheterization and angiocardiography, have been carried out on almost all forms of cardiac and pulmonary disease. The physician is frequently confronted by the practical problem of deciding which patients should be subjected to the inconvenience and expense of one of these special procedures. It is the aim of this presentation to outline, in general terms, the clinical indications for the use of these two special diagnostic procedures in patients with cardiovascular and pulmonary diseases.

Cardiac Catheterization

Cardiac catheterization has now been employed in human subjects for over 20 years, but particularly during the last 5 to 10 years its use has become relatively widespread. Undoubtedly, the major value of this procedure has been as a research tool; and it will certainly continue to be so used during the coming years. Measurements of intravascular and intracardiac pressures, blood flow, and vascular resistance determinations in many parts of the vascular system have been carried out and have been of inestimable value in attaining our present state of knowledge regarding the circulatory system. As a practical diagnostic tool, however, the field of application is considerably more limited.

The initial diagnostic use of the catheter was to determine abnormal shunting of blood in congenital heart disease, such as in atrial and ventricular septal defects. In this respect the catheter method is of major value where there is shunting from the left side of the heart to the right side or, in other words, where oxygenated blood is abnorm-

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ally deposited in a chamber of the heart usually containing only venous blood. The right side of the normal heart contains only venous blood, the oxygen content of which approximates that of the blood coming from the inferior and superior vena cava. In patients with a septal defect, blood shunted from the left to the right side of the heart adds oxygenated blood to that normally there, a fact that can readily be detected by cardiac catheterization. This method, therefore, offers definitive diagnostic evidence of the presence of a functionally patent atrial or ventricular septal defect. Similar principles may be applied to the diagnosis of patent ductus arteriosus. Here, the lesion can be detected by the abnormal finding of oxygenated blood contaminating the normal venous blood of the pulmonary artery.

Determination of the pressures in the pulmonary circulation has for many years been a matter of speculation rather than measurement. With the catheter one can measure this pressure and confirm clinical diagnostic impressions of pulmonary hypertension. This is of value in diagnostic studies on patients with unusual and bizarre forms of pulmonary disease, and particularly in patients with suspected cor pulmonale.

The increasing frequency of operative procedures to alleviate mitral stenosis has demonstrated the inadqeuacy of the usual clinical diagnostic methods in many situations. Now, for instance, the application of hydraulic formulas to the pressure and flow data obtained by cardiac catheterization makes it possible to determine, with a reasonable degree of accuracy, the cross-sectional area or opening of the mitral valve. Normally, this is several square centimeters, but in patients with severe mitral stenosis it is usually less than 1 square cm. The method, therefore, offers much not only in the selection of patients for operative procedures, but also in the postoperative evaluation of the success of such operations.

There has been considerable discussion regarding the dangers of cardiac catheterization. If carried out with proper care and with caution in selection of the patients to be studied, this procedure can be done with little risk. Recent compilation of a large group of over 5,000 cases studied by this method showed the mortality to be approximately 0.1 per cent, and in most instances the difficulties that arose were in patients with serious underlying heart disease. While it is not a procedure to be undertaken lightly, its diagnostic value in selected patients would certainly appear to outweigh these potential difficulties.

Angiocardiography

Angiocardiography is a method of visualizing the heart and great vessels by the injection of contrast media into the vascular system. The usual materials are radiopaque solutions containing iodine. They are rapidly injected into the vascular system through a large caliber needle or a short length of catheter with a large lumen. Injections through a cardiac catheter of the usual sort is not feasible because of its small lumen and the potential dangers of injection directly into the heart. During the few seconds following injection, rapid serial films of the heart and great vessels are taken in order to follow the passage of the contrast material. This can be done by one or several methods. There are simple mechanical casette changers that rapidly place the casette containing the x-ray film in proper position and allow for as many as two films to be taken each second. This is continued for the 10 seconds or so that is required for the material to traverse the right side of the heart, pulmonary circuit, left side of the heart, and aorta. More recently, attempts have been made to photograph even more exposures per second, reaching a peak in methods that utilize a motion picture camera and essentially produce a motion picture of the contrast medium passing through the circulation. There are so many technical difficulties with the motion picture method that it has not achieved widespread use. The recent development of fluoroscopic amplification systems based on the television principle makes this motion picture method of recording a much more simple and interesting possibility.

In contrast to cardiac catheterization, the information provided by angiocardiography is more static, revealing the path and, therefore, the structure followed by blood rather than the dynamics of flow. It is particularly useful where there is some impingement on the normal path, coarctation of the aorta being an excellent example. Here a strictly anatomic view is presented, providing the surgeon with exact knowledge regarding the location and extent of the lesion.

Because the venous blood is first mixed with the contrast material, any shunting from the right to left side of the heart shows up well with this procedure; whereas, left to right shunting is poorly visualized. Therefore, it is more useful in the diagnosis of abnormal communications of the right ventricle into the aorta than it is for the diagnosis of interventricular or atrial septal defects.

In many ways the most useful place for angiocardiography is in the differential diagnosis of mediastinal masses. The thoracic surgeon is frequently faced with the differential diagnosis of an intrathoracic mass. Is it vascular—that is, an aneurysm—or is it a solid tumor arising from some nonvascular source? Angiocardiography usually gives a definitive answer. Aneurysms of the aorta usually are visualized with the contrast material, the exception being that the areas of laminated clot may be so extensive as to create the impression of a nonvascular lesion. This condition is fortunately rare and, in general, the method is highly satisfactory. Furtheremore, in certain instances of carcinoma of the lung it has been noted by angiocardiography that the tumor area is actually avascular, a useful diagnostic point.

Although the basic principles involved in angiocardiography are simple, it is technically somewhat tricky, and some degree of practice by the team doing the procedure and smooth running of the equipment is absolutely essential for good results. There are no really satisfactory figures regarding the mortality, but the method is one of definite though limited danger. Proper selection of the patients and care in testing for iodine sensitivity are imperative. At best, the procedure is highly uncomfortable for almost all patients, but the discomfort is usually of short duration.

Summary

It can be stated that cardiac catheterization and angiocardiography are tools of great diagnostic value in a limited number of difficult clinical problems. Both, particularly catheterization, have been and will continue to be extremely useful research tools in the development of modern concepts of circulatory function. The diagnostic information derived from cardiac catheterization is, in general, physiologic, whereas that derived from angiocardiography is more anatomic. In situations where there is shunting of blood through a septal defect, cardiac catheterization is more effective when the shunt is from left to right, while angiocardiography demonstrates right to left shunts with greater ease. In difficult problems both procedures in combination may be employed. Fortunately, the traditional methods of history and physical examinations, plus the usual laboratory procedures, are enough to diagnose adequately most cardiac defects.

FUNDAMENTAL CONCEPTS IN THE TREATMENT OF ALLERGIC DISEASE

JOHN M. PAINTER, M.D., F.A.C.A.

KENT, OHIO

The solution of clinical problems in allergy is dependent on a recognition of the fact that an altered immunologic response is present. The multiplicity of symptoms seen in many cases may confuse the physician and distract him from an awareness of the mechanisms involved. Often he resorts to futile symptomatic treatment without making an adequate attack on the etiology of the condition.

Six concepts which are fundamental to a sound program for the management of allergic conditions are listed below. The application of these concepts in each individual case will enable the physician to solve many of the problems of hypersensitivity which he encounters.

1. Allergic people are those who are inherently capable of abnormal immunologic reactions to normal environmental factors. The ability to develop immunity is essential to the preservation of our biologic integrity, but it is present to varying degrees in different individuals. At one end of the scale are those anergic individuals who show little or no immunologic response, and at the opposite end are those over-responsive patients who show clinical symptoms of allergy. In the latter group the abnormal response may be (1) quantitative, with the formation of an unusual number of antibodies, or (2) qualitative, with the formation of abnormal antibodies capable of uniting with or being bound by the affected receptor cell. In the

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allergic person tissues containing the cell-bound antibodies are the shock organs. In non-allergic people antibodies are stored in the serum and subcutaneous tissues.

Sensitization is possible even in relatively non-reactive individuals if the exposure is sufficiently prolonged or the agent sufficiently antigenic—as, for example, poison ivy or benzol. It has been shown also that variations in reactivity occur in cells which have not been previously sensitized.

2. Allergic people become sensitive to those agents to which they are exposed in the greatest quantity and for the longest period of time. Of the air-borne inhalants, house dust and, in our area, ragweed pollen are prevalant in the greatest quantity and for the longest time, and hence are the ones most likely to produce sensitivity. Frequently the patient's statement that he can't be sensitive to citrus fruit (or some other food) because he eats it every day will give us a clue to the antigenic agents involved by pointing out the materials to which he has had the heaviest and most prolonged exposure.

3. Symptoms are usually the cumulative response to several sensitivities (fig. 1). The degree of these individual sensitivities depends on (1) the antigenicity of the agent involved, and (2) the amount of material to which the patient is exposed, as well as the duration of the exposure. Each of the sensitivities in operation at any given time, however, contributes to the individual's total degree of sensitivity, which determines his symptomatic response. Each allergic patient possesses a critical level of sensitivity at which he responds with symptoms. Only when his own "critical sensitivity level" is reached or exceeded will symptoms appear.

The antigenic materials contributing to each individual's sensitivity are best identified by the history, and only secondarily by such procedures as skin tests and elimination diets. Once the allergenic materials have been identified, the patient should be instructed to avoid them, so far as possible. Desensitization is undertaken only when the total degree of exposure to all allergens cannot be held at a level well below the individual's critical sensitivity level, and only those antigenic agents which cannot be avoided are included in the desensitization program.

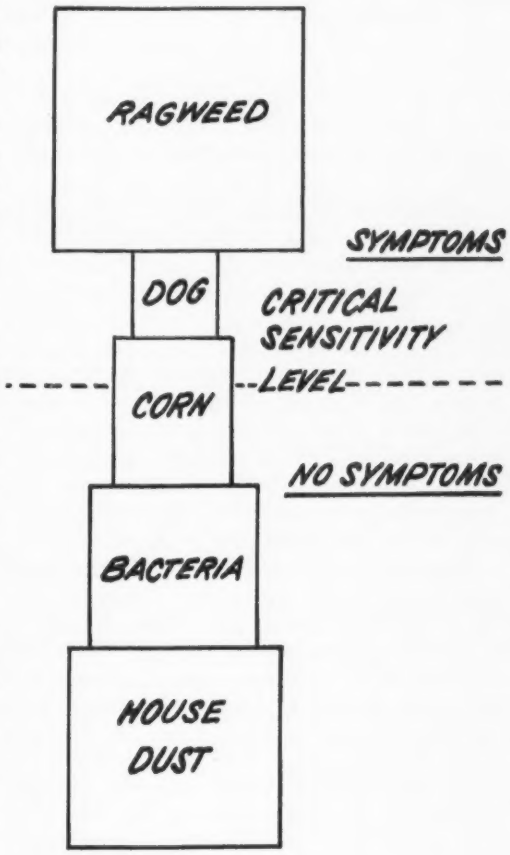

Figure 1

4. Clinical symptoms usually involve the skin first, and then the eyes, nose, throat, trachea, bronchial tree, and alveoli, in that order. Gastrointestinal symptoms occur most frequently early and late in life, and vascular symptoms in later life. The progression from one site to another may be slow or rapid, and in some patients clinical symptoms of allergy do not have their onset until late in life. Symptoms may occur in several sites, or shock organs, simultaneously. While it is true that certain antigens tend to involve certain tissues more frequently than others, any antigen may produce symptoms in any tissue capable of responding as a shock organ. Ragweed pollen, for example, may produce eczema of the feet and legs.

This concept helps the physician to identify allergic patients early in life, and by anticipating further symptoms, to prevent more serious sequelae.

5. Symptoms, or sensitivity responses, are modified by age, endocrine changes, climatic factors, and emotional stress.

The infant may be sensitized *in utero*, but much more commonly sensitivity develops only after constant re-exposure over many years.

At times when major shifts in endocrine balance occur (at 1, 6, 12, 45, and 65 years of age and during or following pregnancy) the type, site, or manner of allergic response in a sensitive person is likely to undergo radical change. This fact has given rise to the erroneous concept that at those ages people are likely to "outgrow" their allergies. As a result, the program of allergic management is often withdrawn, causing the patient's sensitivities to increase and symptoms to reappear with increased intensity in new shock organs.

Climatic factors, which include humidity, temperature, and barometric pressure, may vary with the time of day. When the humidity is high, and respiratory effort is increased and air-borne antigens are concentrated near the ground. A rise in temperature aids in dispersing air-borne antigens. An increase in barometric pressure tends to concentrate air-borne particles and to increase the concentration of oxygen in the air. Dr. Herman Heise has found that pollen and fungus spores in the atmosphere, which are dispersed to a height of 12,000 to 15,000 feet on a sunny afternoon, may be concentrated in the lower 800 to 1000 feet between 3 and 4 A.M.

The critical level of response to antigens may be raised temporarily by emotional stress, but when such stress is continued the critical sensitivity level is usually lowered. This pattern of response to stress is similar to that described in Selye's general adaptation theory. Many patients have symptoms only when they are emotionally exhausted.

Knowledge concerning the factors modifying sensitivity responses may enable us to anticipate situations which may call for extra precaution. Any one of these modifying factors may be important enough at a given time to prevent or produce clinical symptoms.

6. Repeated attacks of clinical allergy lower the critical sensitivity level of response, so that subsequent exposures to antigens result in more severe symptoms. During the ragweed season, for example, symptoms increase in severity after two to four weeks, though the pollen count is receding at this time. Thus it is important to avoid continued and prolonged exposure to any potential antigen. It is equally important to relieve symptoms by whatever means are available. Therapeutic measures include (1) antihistamines for blocking the action of histamine, (2) aminophylline and epinephrine to counteract the end effects of smooth muscle spasm and increased capillary permeability, (3) sedatives, and (4) corticotrophic hormone for blocking antibody formation and rendering the shock organ more resistant to reaction.

Summary

Six basic concepts concerning the production of allergic symptoms have been listed as a guide for the physician who is interested in problems of sensitivity. The application of these principles should be of help in the management of allergic patients.

FRIEDLANDER'S MENINGITIS: REPORT OF A CASE COMPLICATING FRIEDLANDER'S PNEUMONIA WITH RECOVERY

GEORGE ANDERSON, M.D.

and

ERNEST YOUNT, M.D.

WINSTON-SALEM

Meningitis due to *Klebsiella pneumoniae* is rare, accounting for less than 0.2 per cent of all cases of meningitis. The majority of the cases are due to local extension, and there has been previously reported only 1 case of meningitis secondary to Klebsiella pneumonia in which the patient had an initially positive blood culture and then recovered[1]. The purpose of this paper is to report another such case and to demonstrate the course of Friedländer's meningitis which developed during hospitalization.

Case Report

A 50 year old white male chronic alcoholic was admitted to the North Carolina Baptist Hospital on December 18, 1952, with a two months' history of chronic cough productive of mucoid sputum. Six days prior to ad-

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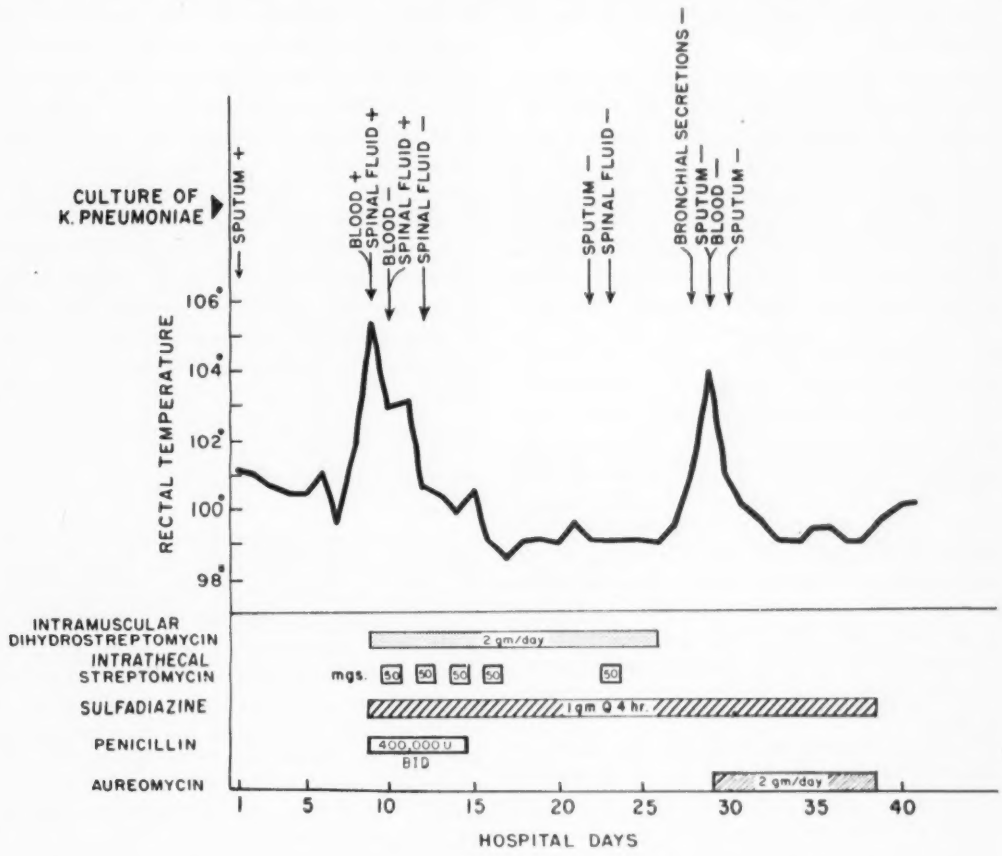

Figure 1

mission pleuritic pain had developed in the left side of the chest, accompanied by an increase in sputum which became rust-colored and later like currant jelly in appearance. Associated with this were "chilly' sensations and night sweats.

Physical examination revealed a man who did not appear acutely ill, with a rectal temperature of 101 F., pulse 94, respiration 24, blood pressure 132 systolic, 74 diastolic. Positive physical findings were limited primarily to the left lower lung field, where there was dullness to percussion and coarse, moist rales. The liver edge was palpable 3 cm. below the right costal margin and was firm, smooth, and non-tender.

Laboratory studies included a urinalysis which was negative. The hemoglobin was 11 Gm. and the white cell count 10,800. The differential picture showed 63 per cent segmented neutrophils, 13 per cent nonsegmented neutrophils, 1 per cent eosinophils, 16 per cent lymphocytes, and 7 per cent monocytes. A roentgen examination of the chest revealed a mottled infiltration in the left lower lung field, with fluid in the costrophrenic sinus. A sputum culture showed *K. pneumoniae*. Liver function studies were compatible with Laennec's cirrhosis.

During the course of hospitalization the patient began to have a severe, throbbing frontal headache followed by a shaking chill and an elevation of temperature to 105 F. This was not associated with any change in the pulmonary findings, but the patient did evidence marked nuchal rigidity. An examination of the spinal fluid revealed an opening pressure of 250 mm. The fluid was cloudy, with a cell count of 4,800 consisting predominantly of segmented neutrophils. Cultures taken simultaneously from the blood

and the spinal fluid were positive for *K. pneumoniae.*

Therapy was immediately begun with dihydrostreptomycin, penicillin, and sulfadiazine as indicated in the graphic chart. Twenty-four hours after the onset of therapy the spinal fluid was again examined, at which time the cell count was 15,900 and contained 93 per cent segmented neutrophils. Again *K. pneumoniae* was demonstrated by culture. Intrathecal streptomycin therapy was instituted, and the procedure was repeated on four occasions at 48 hour intervals. Forty-eight hours after starting this treatment, the spinal fluid was clear, and there were only 54 cells, which were primarily mononuclear. This and a subsequent spinal fluid culture failed to grow *K. pneumoniae.*

The patient's pulmonary disease was additionally treated with aerosol streptomycin and postural drainage after the meningitis had subsided. Bronchoscopy with bronchography was carried out on the twenty-ninth hospital day, revealing incomplete filling of the bronchial tree supplying all the basal segments of the left lower lobe. Following this procedure the patient's temperature rose to 104 F. accompanied by an increase in cough and production of sputum. A culture of the sputum was negative for *K. pneumoniae.* Aureomycin was given with an excellent response.

At the time of the patient's discharge from the hospital there still remained atelectasis of the left lower lobe; however, the use of an expectorant and postural drainage was continued at home, and follow-up chest film made one month after discharge showed complete clearing. Cultures from the throat and sputum have since failed to grow *K. pneumoniae.*

Comment

The rarity of Friedländer's meningitis is demonstrated by reviews of 6,051 cases of meningitis of which only 11 were due to *K. pneumoniae*[2].

The portal of entry for the organism in over 50 per cent of the cases is found to be otorhinolaryngologic, the primary focus usually being the middle ear, mastoid, and paranasal sinuses, followed less frequently by wounds and neurosurgical procedures[3]. Thompson and others[1], in reviewing the literature, found the primary focus in the lower respiratory tract in only 10 of 119 cases, and of these only one patient recovered. Our case is of interest in that it appears to be the second reported case of Friedländer's meningitis occurring after *K. pneumonia* with an initially positive blood culture in which the patient recovered. The poor prognosis in these cases is apparently due to the rapid dissemination of the organism by invasion of the general circulation. This may produce extensive suppuration prior to the institution of adequate therapy. The fact that this patient incurred meningitis while hospitalized provided an opportunity to observe the natural onset of the disease and institute therapy early enough to prevent a fatality.

Debilitating diseases of various types have been known to predispose to Friedländer's pneumonia. These may include acute and chronic alcoholism, cirrhosis, bronchiectasis, carcinoma, tuberculosis, and senility[2b,3,4]. There is also reported a striking correlation of *K. pneumoniae* meningitis with diabetes mellitus[1,2b,3,4a,b,c,5], a situation which probably allows increased virulence of the organism because of the hyperglycemia present[1,4a,5]. In our case, a history of chronic alcoholism was obtained, and liver function studies were compatible with Laennec's cirrhosis.

Identification of *K. pneumoniae* is frequently difficult because of the cultural and immunologic similarities of this organism with *A. aerogenes,* coliform organisms, and pneumococci. The difficulty in establishing definitive bacteriologic diagnosis has been reported previously [6]. The appearance of petechiae in Friedländer's infections may lead to the mistaken diagnosis of meningococcemia. Because of the presence of specific carbohydrate substances within the capsule of the organism, it has been possible to separate *K. pneumoniae* into several well defined immunologic groups, and antisera for the two most common of these, types A and B, are usually available for typing. In this respect there is a striking parallelism to the pneumococcus, as well as a close resemblance to it on direct smear. An attempt to type the organism, cultured in our case with types A and B antisera, was unsuccessful; how-

ever, intraperitoneal inoculation into a mouse of 0.1 cc. of a suspension of 900,000,000 organisms per cubic centimeter resulted in its death within 18 hours, a result not obtainable with coliform organisms or *A. aerogenes*.

Prior to the advent of the sulfonamides, meningitis due to *K. pneumoniae* was almost invariably fatal[2b,3b,4]; however, the use of these drugs, especially sulfadiazine, has considerably improved the prognosis.

Although the *K. pneumoniae* organism is quite sensitive to streptomycin *in vitro*, resistance may be increased 4 to 8 times in the presence of blood or serum[1]. The intrathecal administration of streptomycin is not generally advocated, but it was our feeling that the poor prognosis in this patient justified the procedure.

Aureomycin, chloramphenicol, and Terramycin have been shown to be highly effective against the organism *in vitro;* however, one must await further *in vivo* studies before a proper evaluation of these drugs can be made[5,7]. Penicillin has been found to be of little value as a therapeutic agent against *K. pneumoniae* infections[8].

Summary

A case of *K. pneumoniae* meningitis complicating Klebsiella pneumonia, with an initially positive blood and spinal fluid culture and subsequent recovery, is reported. Only one such patient who survived had been reported prior to 1952.

The bacteriologic and therapeutic characteristics of the organism have been discussed.

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New Therapeutic Agent for Systemic Fungus Infections

Blastomycosis, when disseminated systemically, has been fatal in at least 8 out of 10 patients. This high death rate is common to systemic fungus diseases.

New hope for the patient is now available with the release of an important new therapeutic agent. Two cases of blastomycosis (J.A.M.A. 146:1317, 1951) showed immediate response to Stilbamidine, as reported about two years ago. More recently, Stilbamidine has been used for the first time in treating a resistant case of actinomycosis (J.A.M.A. 150:35, 1952). Response was prompt.

Stilbamidine is one of the diamidine drug series. It has been widely studied in leishmaniasis (kala-azar) and trypanosomiasis. Stilbamidine has been used as a palliative treatment of multiple myeloma; however, dramatic relief of bone pain is only temporary and the prognosis is not influenced.

Like streptomycin, the drug has an affinity for a cranial nerve. Trigeminal involvement may occur, so the patient and physician should be alert to this possible side effect. Stilbamidine solutions are unstable when exposed to ultraviolet light, and only freshly prepared and protected solutions should be injected.

Stilbamidine is available from The Wm. S. Merrell Company in ampuls containing 150 mg. Stilbamidine isethionate sterile powder. The dose should be diluted in 200 cc. of sterile 5% dextrose injection or isotonic sodium chloride solution. The suggested dose is 150 mg. Stilbamidine, given intravenously by continuous slow drip, and should be repeated every 24 to 48 hours. It may be advisable to begin therapy with 50 mg. Stilbamidine and increase the second dose to 100 mg. The third and subsequent doses of 150 mg. Stilbamidine are given until a course of about 15 injections is completed.

The drug has now been released to the medical profession. For detailed information on Stilbamidine write The Wm. S. Merrell Company, Department of Professional Service, Cincinnati 15, Ohio.

Aphasia—It is extremely important, in cases of aphasia, for the physician to explain both to the patient and to his family the nature of aphasia and his inability to speak. This should be done as soon as the patient has recovered consciousness and aphasia is noted, in order that his fear of "losing his mind" may be allayed.—Rusk, H. A.: Chronic Disease in an Aging Population 33: 1346 (Dec.) 1950.

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NOVEMBER, 1953

THE SOUTHERN MEDICAL ASSOCIATION

The forty-seventh annual session of the Southern Medical Association, held in Atlanta October 26-29, attracted about 4,000 members and visitors, and was one of the most successful it has yet held.

North Carolina can well take pride in the showing made by her doctors. The first award for the scientific exhibits was given Dr. George T. Harrell of Bowman Gray for his exhibit, "Cellular Changes of Sodium and Potassium in Man." Three North Carolinians were chairmen of sections: Drs. George Harrell and David Cayer of Winston-Salem were chairmen of the Sections on Medicine and Gastroenterology respectively. Dr. J. W. R. Norton, our State Health Officer, was chairman of the Section on Public Health, and vice chairmen were Drs. J. M. Hitch of Raleigh (Section on Dermatology and Syphilology), R. B. Raney of Chapel Hill (Section on Orthopedics), and David A. Davis of Chapel Hill (Section on Anesthesiology). Dr. R. Wayne Rundles of Durham was secretary of the Section on Medicine, and Dr. Mac Roy Gasque of Pisgah Forest was secretary of the Section on Industrial Medicine and Surgery. Dr. F. Bayard Carter of Durham was president of the Southern Society of Cancer Cytologists, which met conjointly with the Southern Medical Association.

Panel moderators from North Carolina were Dr. Julian M. Ruffin of Durham ("The Management of Upper Gastrointestinal Bleeding") and Dr. George Harrell ("Newer Techniques and Problems in Medical Diagnosis"). Panel discussions were contributed by Drs. John B. Hickman and F. Gregg Horne of Durham, Drs. John L. Simmons and David A. Davis of Chapel Hill, and Dr. Ernest Yount of Winston-Salem.

In addition to the three official chairmen's addresses, individual papers were presented by Dr. George D. Wilson of Asheville, Dr. Ira H. Rapp of Charlotte, Drs. Eben Alexander, Courtland H. Davis, Jr., and James F. Donnelly of Winston-Salem, Drs. Donald D. Carter, William D. Shingleton, William C. Sealy, Albert G. Smith, Richard N. Wrenn, Edward S. Whitesides, Ralph W. Coonrad, Charles E. Flowers, Jr., and Leon Levitt, all of Durham, and Drs. Leonard Palumbo, Robert A. Ross, and David A. Davis of Chapel Hill. Other North Carolinians introduced or participated in discussions of papers.

Motion pictures were shown by Dr. James H. Cherry of Asheville ("Femoral Head Prothesis") and Dr. J. Leonard Goldner of Duke ("Reconstructive Surgery of the Hand Following Thermal Burns"). Dr. Joseph W. Hooper, Jr., of Wilmington had a part in the exhibit from the Medical College of Virginia on "The Technic of Pre-Sacral Air Study."

Altogether the North Carolina medical profession can take just pride in the showing made by its representatives.

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THAT COLLIER'S ARTICLE

Many doctors have read with interest—to state it mildly—the article in the October 30 issue of *Collier's* magazine, "Why Some Doctors Should Be in Jail." On the cover of the magazine and opposite the second page of the article are pictured sinister figures in surgical attire who are obviously involved in an evil conspiracy against the patient. To make the article seem more convincing, pictures of Dr. George Lull, secretary and general manager of the A.M.A., Dr. Edward J. McCormick, president of the A.M.A., and other medical leaders are given, together with their comments upon fee-splitting. As George Lull said in his "Secretary's Letter" for October 30, "The way in which the subject was presented left the false impression that I reviewed and approved the article, its title and cover illustration before publication. The fact is that I never saw the article before it was published nor did any of the other medical leaders who were quoted in the story."

The magazine was on display at the newsstands during the annual conference of the Association of American Medical Colleges at Atlantic City. Dr. Edward L. Bortz, a former president of the American Medical Association, asked a number of men—some of whom had been in practice for 40 or 50 years — if they had even known a case of ghost surgery. Not one had ever heard of such a case as was described by Howard Whitman in his article. It was, however, admitted by all that fee-splitting was still practiced in various parts of the country—though all of the group denounced it as unethical and dishonest.

One reason for fee-splitting is that the public is conditioned to pay surgeons much larger fees than they are willing to pay their family doctors. Unfortunately some unscrupulous surgeons and some rapacious general practitioners take advantage of the situation to enter into a fee-splitting arrangement. Since the gap between the income of the general practitioner and that of the specialist has been steadily narrowed until it is now almost imperceptible, it should not be necessary for a successful family doctor to eke out his income by such dishonesty.

It is unfortunate that so many innocent physicians will have to suffer along with the guilty from the public suspicion which is inevitably aroused by the publication of such an article. The real remedy, of course, is for all guilty ones to "cease and desist" from the practice. Every medical man should be governed by the Principles of Medical Ethics of the American Medical Association. The first two sentences of these principles appear every month on the masthead of the NORTH CAROLINA MEDICAL JOURNAL: "The prime object of the medical profession is to render service to humanity; reward or financial gain is a subordinate consideration. Whoever chooses this profession assumes the obligation to conduct himself in accord with its ideals."

Other pertinent Principles are: "An ethical physician will not receive remuneration from patents on or the sale of surgical instruments, appliances and medicines, nor profit from a copyright on methods or procedures."

"A physician should expose, without fear or favor, incompetent or corrupt, dishonest or unethical conduct on the part of members of the profession."

"When a patient is referred by one physician to another for consultation or for treatment, whether the physician in charge accompanies the patient or not, the giving or receiving of a commission by whatever term it may be called or under any guise or pretext whatsoever is unethical."

These and all other principles of ethics—medical of otherwise—are summed up in the rule of conduct laid down many years ago by the Great Physician: "Whatsoever ye would that men should do unto you, do you even so unto them."

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THE GROWTH OF MEDICAL RESEARCH

In *Science* for September 25, Kenneth M. Endicott and Ernest M. Allen tell of the amazing increase in expenditures for medical research since 1941. Total expenditures for medical research from all sources in 1941 were 18 million dollars; in 1951, they were 181 million—a tenfold increase. The federal government was a very minor contributor in 1941, but in 1951 provided 60 million dollars—one third of the total expenditures.

An interesting feature of the report was the rapid increase in what the authors call "research potential" — an index based on "manpower, publications, advanced degrees, approved residencies, and other factors."

North Carolina doctors will be gratified to know that the Bowman Gray School of Medicine was one of the fourteen medical schools moving up most rapidly in research potential. Between 1944 and 1950 Bowman Gray advanced eleven places in rank order.

It was gratifying to read the following statement concerning the government's policy in administering the grants:

"Those who established the program believed that maximum progress can be achieved only if the scientists enjoy freedom to experiment without direction or interference, and they drew up policies and procedures accordingly. The decision as to which applications are approved rests with committees of non-Government scientists, who serve also to develop policies designed to meet changing needs. The investigator works on problems of his own choosing and is not obligated to adhere to a preconceived plan. He is free to publish as he sees fit and to change his research without clearance if he finds new and more promising leads. He has almost complete budget freedom as long as he uses the funds for research purposes and expends them in accordance with local institutional rules. Progress reports are required only once a year and are used chiefly as the tool for evaluation of renewal applications. Title to equipment purchased with grant funds is vested in the grantee institution and remains with that institution upon termination of the grant. Once a grant is made, there is no direction or interference on the part of Government."

It was also gratifying to know that industries and other sources of private capital have markedly increased their appropriations for medical research. It would seem from this article that the importance of research in advancing medical knowledge is being more and more generally recognized.

* * *

HELP WANTED IN BLOOD PRESSURE STUDY

The letter from Dr. Arthur M. Master which appears below is self-explanatory. No doubt many of our readers know that Dr. Master has long been interested in establishing a true value for the normal range of blood pressure in older individuals, and in determining the effect of obesity and other factors.

Readers of the NORTH CAROLINA MEDICAL JOURNAL can make a real contribution to clinical research by responding to Dr. Master's request for information.

* * *

To the Editor:

As the enclosed protocol indicates, my associates and I are engaged in a study of the blood pressure in people 65 and over, sponsored by the New York Heart Association. Three weeks ago we mailed questionnaires to 17,000 physicians throughout the country. Each physician received a letter of instruction in filling out the questionnaires. It was suggested that he supply blood pressure and other data on six cases, if possible. Thus far the number of responses has been disappointingly small. Although we realize that a relatively short time has elapsed since the questionnaires were sent out, we are afraid that many physicians may not appreciate the value of this study and the fact that it must fail unless they give full cooperation.

In order to bring these facts to the attention of the medical profession, we would appreciate it if you could find space in your journal to present the project, either editorially or in a special announcement, and to urge the support of physicians. Filling out the questionnaires does not require much time and many physicians will, we hope, take the trouble to do so if they understand the importance of their cooperation. Questionnaires have been sent to only about one in ten physicians. We hope that others will be interested; if they send a postcard to "BLOOD PRESSURE STUDY," 11 East 100th Street, New York 29, N. Y., the questionnaires will be forwarded to them.

ARTHUR M. MASTER, M.D.
Director, Blood Pressure Study
Under Auspices of New York
Heart Association

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AN APPROPRIATE CHOICE

The Medical Society of the State of North Carolina chose well in nominating Dr. Oscar L. Miller for the 1953 President's Award to the physician contributing most to physical and vocational rehabilitation. The formal presentation of Dr. Miller was made on behalf of the Society at the meeting of the Seventh District Medical Society on October 7, at which time he received a citation from the President of the United States.

A number of reasons were offered in support of Dr. Miller's nomination: his record as a pioneer in the field of orthopedic surgery in North Carolina, his work in training younger men in orthopedic surgery, his love of humanity, and the high standards of professional ethics which he has maintained through the years. Both in private and in institutional practice he has devoted himself to the welfare of the physically handicapped. This recognition of his distinguished service is well deserved.

Committees and Organizations

NORTH CAROLINA TUBERCULOSIS ASSOCIATION

NO TRUCE WITH TB

DONALD S. KING, M.D.

It was Saturday afternoon on Okinawa, that war-famed island in the far Pacific. The month was February, 1952. In the auditorium of the United States Army Hospital there were gathered many Okinawans and Americans who were interested in the control of tuberculosis among the island population as well as in the United States troops who were in contact with them. Even in this far-away spot there was excitement over news that made the headlines of the New York papers only a few days before. Science had discovered a new pill which made bed-ridden tuberculous patients feel "so simply wonderful" that they were "dancing in the corridors." Since that day, more than a year has passed and some of those who danced are dead.

There is no doubt, after a seven-year trial, that certain drugs are very helpful in treating tuberculosis. So, for the first time in history, we have drug treatment to add to the time-tried but never really satisfactory formula of "rest, fresh air, and good food," and the later treatment by pneumothorax, pneumoperitoneum, thoracoplasty, and surgical removal. By February, 1952, it had been determined that the most effective drug treatment was a combination of streptomycin and para-aminosalicylic acid (PAS). Then came the exciting new drug which is now officially named "isoniazid" but may be referred to by at least half a dozen other trade names. As intimated above, Isoniazid has not lived up to the original expectations, but by itself it is a better drug than PAS and it is hoped that the combination of streptomycin and the pleasant Isoniazid will be as good or better than streptomycin plus the rather unpleasant PAS. Time and much careful study will tell.

But there is as yet no evidence that drug treatment can replace bed rest and surgery. It is only an extraordinarily useful addition to older methods of treatment. However, it may shorten the period of bed rest and sanatorium care, and it may improve the condition of many patients sufficiently to warrant an operation previously considered too dangerous.

But there is no hope that chemotherapy is so effective that it will wipe out tuberculosis in a few years' time and so make other efforts to control tuberculosis unnecessary.

It is true that death rates are dropping rapidly in most cities in the United States, but it is also true that in many cities the drop has not continued when federal or local health organizations have stopped their x-ray surveys and other control measures. And it is alarmingly true that tuberculosis is still the first cause of death from disease in young adults and that there is no decrease in the number of active cases discovered in the older males.

Therefore, there must be no slackening in our efforts to fight tuberculosis. We must still conduct x-ray surveys to find early or asymptomatic disease; provide facilities for perhaps yearly x-ray checks of large portions of the population; continue the campaign to have chest x-rays of all hospital admissions and all hospital personnel; continue the support of research workers who are studying fundamental scientific problems, and help provide special instruction in lung disease for medical students and nonspecializing doctors. These and many other problems will need our constant attention.

But someone has to provide the money which makes such studies possible. The Christmas Seal Sales have through the years provided the life blood for the volunteer citizens' campaign against tuberculosis. This campaign will be carried on by the 3,000 tuberculosis associations in the United States until tuberculosis is defeated.

BULLETIN BOARD

COMING MEETINGS

Duke Medical Symposium on Psychiatry for the Non-Psychiatrist—Duke University, December 1-2.

North Carolina Sectional Meeting, American College of Surgeons—Charlotte, February 1, 2, and 3, 1954.

Public Relations Conference, Medical Society of the State of North Carolina—Sir Walter Hotel, Raleigh, February 12, 1954.

University of Florida Seminar in Ophthalmology and Otolaryngology—Miami Beach, January 18-23.

NEWS NOTES FROM THE DUKE UNIVERSITY SCHOOL OF MEDICINE

Drs. William W. Shingleton, assistant professor of surgery, William C. Sealy, associate professor of surgery, Donald D. Carter, instructor in medicine, John B. Hickam, associate professor of medicine, and F. Gregg Horne, assistant resident in anesthesiology, presented scientific papers at the Southern Medical Association's annual meeting at Atlanta, Georgia, October 26-29.

Dr. Roger D. Baker, professor of pathology at Duke and chief of pathologic services at the Veterans' Administration Hospital here, Dr. Clarence Davis, assistant professor of obstetrics and gynecology, and Dr. Julian M. Ruffin, professor of medicine, discussed papers in their respective fields.

Dr. J. Leonard Goldner, assistant professor of orthopedics, presented a movie on reconstructive surgery of the hand following burns.

Dr. Horne also participated in a panel discussion on "Anesthesiology in Urology," and Dr. Ruffin was moderator for a panel on the gastrointestinal tract.

Dr. Bayard Carter, professor of obstetrics and gynecology, is president of the Southern Society of Cancer Cytology, meeting simultaneously with S.M.A., and Dr. R. Wayne Rundles, associate professor of medicine, is secretary of S.M.A.'s Section on Medicine.

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The third Duke Medical Town Hall, on rheumatic fever, was held Sunday, October 25, at 4 p.m. in the University's Physics Building Auditorium.

Speakers were Dr. Jerome S. Harris, pediatrician; Dr. Jack D. Myers, internist; and Dr. William C. Sealy, thoracic surgeon.

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A new yardstick for counting virus particles has immeasureably stepped up cancer research at Duke University. Employing an electronmicroscope, the new counting method already has saved Duke scientists months of work. For instance, investigations on 105 virus-produced cancers in chickens formerly took two months' work. The same process now takes about 20 minutes.

Developed by Dr. Gordon Sharp, biophysicist in experimental surgery at Duke Medical School, the new system has become "indispensable" to researchers in describing some of the complex factors involved in virus cancer.

* * *

A report on 25 years of pioneer scientific exploration into the mysteries of the mind will appear in a new book published this month by William Sloane Associates. Duke University parapsychologist Dr. J. B. Rhine, who has long defended his controversial research in extrasensory perception (ESP) against criticism, takes a long backward and a searching look forward at a field which has captured the imagination of millions. His report, "New World of the Mind," poses vital questions about the human mind and charts new areas of research. It is the first complete summation of the 25 years' research.

"New World of the Mind" gives an account of past research, current experiments, and future potentials in the world of extrasensory perception. Clairvoyance, telepathy, precognition, and the influence of mind over matter are discussed in the light of new evidence based on scientific experiments with men and animals. His previous books include "New Frontiers of the Mind," a Book-of-the-Month Club selection in 1937; and "The Reach of the Mind," which has appeared in British, French, German, Japanese, Italian, and Danish editions.

NORTH CAROLINA CHAPTER, AMERICAN COLLEGE OF CHEST PHYSICIANS

The fourth annual meeting of the American College of Chest Physicians, North Carolina Chapter, was held in Asheville, October 16. At the afternoon session Dr. Harry E. Walkup of Oteen gave a review of lucite thoracoplasty, with a presentation of 82 cases with control group; Dr. E. S. Avery and Dr. J. C. Wiggins, Jr., of Winston-Salem presented a clinicopathologic conference; and Dr. Lawrence A. Mucci of Asheville was moderator for an x-ray conference to which members and guests had been invited to bring interesting chest films for interpretation and discussion. A movie showing the removal of a mediastinal tumor, prepared by the surgical department at Oteen, was also presented.

Guest speaker at the evening session was Dr. Otto C. Brantigan, professor of thoracic surgery at the University of Maryland School of Medicine, whose topic was mediastinal tumors.

HOSPITAL CARE ASSOCIATION

Some 250 doctors, hospital administrators, representatives of voluntary health agencies, and state health officials from throughout North Carolina were invited to attend a dinner held at the Washington Duke Hotel, on October 30, celebrating the twentieth anniversary of the Hospital Care Association of Durham. E. A. van Steenwyk, executive director of Associated Hospital Service of Philadelphia, was the principal speaker.

Honored guests at the anniversary program were the first members ever enrolled by the Hospital Care Association, Mr. and Mrs. Charles L. Medlin, of Raleigh; the first "Blue Cross Baby," Miss Ann Woodard, of Chapel Hill; the president of the first employee-group, the Herald-Sun Papers, in Durham, C. C. Council. The president of the North Carolina Hospital Association, S. K. Hunt, of Asheville, and the president of the State Medical Society, Dr. Joseph A. Elliott, of Charlotte, represented the hospitals and the medical profession of the state. Special invitations were extended to Governor William B. Umstead, and all North Carolina members of Congress.

The program reviewed the growth and development of the Durham Blue Cross Plan since its beginning in 1933. Hospital Care is the oldest nonprofit, voluntary prepayment health service organization in the state, the fourth oldest in the nation. During the 20 years it has been in operation the Durham Blue Cross Plan has paid out to the hospitals and doctors of North Carolina benefits totaling more than $20,000,000. On an average, more than 1,000 hospital and doctor bills are now paid every week in the year. Payments this year will run over $4,000,000.

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P. Frank Hanes of Walkertown was elected president of Hospital Saving Association, the Blue Cross-Blue Shield plan, at a meeting on October 20 of the board of trustees, it was announced recently. Mr. Hanes fills the vacancy created by the death of Robert Lassiter, Charlotte businessman, who died last February 18.

Earlier this year, Mr. Hanes retired from R. J. Reynolds Tobacco Company, with which he had been associated since 1915.

Sixth District Medical Society

The meeting of the Sixth District Medical Society was held on October 14, at State Hospital, Butner. Dr. Harold B. Kernodle presided over the meeting. Speakers for the afternoon session were Dr. H. MacM. White, Dr. Joseph E. Merritt, Dr. S. P. Perry, and Dr. John P. Collins. For the evening session the speakers were Dr. Warner Wells and Dr. Ivan Brown.

Eighth District Medical Society

The Randolph County Medical Society was host to the Eighth District Medical Society at Asheboro on October 14. The following scientific program was presented: "Functional Uterine Bleeding"—Dr. Mary I. Griffith, instructor in obstetrics and gynecology, Bowman Gray School of Medicine, Winston-Salem; "Dilemmas in the Diagnosis of Viral Infections"—Dr. Edward C. Curnen, head of the Department of Pediatrics, University of North Carolina School of Medicine, Chapel Hill; "Recent Advances in Blood Transfusion Therapy"—Dr. Ivan W. Brown, assistant professor of surgery, Duke University School of Medicine, Durham; "The Management of Hepatitis and Cirrhosis"—Dr. Charles M. Caravati, associate professor of clinical medicine, Medical College of Virginia, Richmond; "Diffuse Calcification of the Pancreas"—Dr. Chauncy McGeorge, assistant professor of radiology, University of Pennsylvania Graduate School of Medicine, Philadelphia.

Officers of the Society are Dr. George B. Johnston, president; Dr. Luke W. Query, vice president; and Dr. C. F. Owen, Jr., secretary-treasurer.

The Auxiliary to the Eighth District Medical Society met simultaneously.

Edgecombe-Nash Medical Society

The Edgecombe-Nash Medical Society met in Rocky Mount on October 14.

Dr. Julian Brock, in charge of the scientific program, presented as speaker, Dr. Reno Porter, professor of medicine at the Medical College of Virginia, whose subject was "The Clinical Use of Digitalis Preparations."

Forsyth County Medical Society

Dr. James F. Donnelly, assistant professor of obstetrics and gynecology of the Bowman Gray School of Medicine, discussed "Facts About Maternal Mortality in North Carolina" at the October meeting of the Forsyth County Medical Society.

News Notes

Dr. William A. Lambeth, Jr., has announced the opening of offices at 824 Nissen Building in Winston-Salem. His practice will be limited to internal medicine.

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Dr. Donald H. Lomax has announced the opening of his office for general practice at 707 Barker Street, Medical Arts Building, in Salisbury.

Medical College of South Carolina Postgraduate Seminar

The Medical College of South Carolina held a postgraduate seminar, coinciding with the interim meeting of the South Carolina chapter of the Academy of General Practice and Founders' Day, at Baruch Auditorium in Charleston, November 3-5. North Carolinians appearing on the Founders' Day program on November 5 were Dr. Robert A. Ross, professor of obstetrics and gynecology, and Dr. Edward C. Curnen, professor of pediatrics, both of the University of North Carolina School of Medicine.

University of Florida Seminar in Ophthalmology and Otolaryngology

The eighth annual University of Florida Midwinter Seminar in Ophthalmology and Otolaryngology will be held at the Sans Souci Hotel in Miami Beach the week of January 18, 1954. The lectures on ophthalmology will be presented on January 18, 19 and 20, and those on otolaryngology on January 21, 22 and 23. A midweek feature will be the midwinter convention of the Florida Society of Ophthalmology and Otolaryngology on Wednesday afternoon, January 20, to which all registrants are invited. The registrants and their wives may also attend the informal banquet at 8 p.m. on Wednesday. The seminar schedule permits ample time for recreation.

The seminar lecturers on ophthalmology this year are Dr. W. B. Anderson, Durham, North Carolina; Dr. W. P. Beethem, Boston; Dr. W. C. Owens, Baltimore; Dr. A. B. Reese and Dr. M. C. Wheeler, both of New York City. Those lecturing on otolaryngology are Dr. E. N. Broyles, Baltimore; Dr. H. P. House, Los Angeles; Dr. W. J. McNally, Montreal, Canada; Dr. Dorothy Wolff, and Dr. D. Woodman, New York City.

Mississippi Valley Medical Society

Dr. Robert L. Sanders of Memphis, Tennessee, nationally known surgeon, was honored as recipient of the 1953 Honor Award given by the Mississippi Valley Medical Society. Dr. Sanders is professor of surgery at the University of Tennessee, and his 47 years of clinical experience has "favorably influenced the conduct and prestige of many thousands of men of medicine." The Honor Award is given from time to time to non-members of the Society "who have made distinguished contributions to clinical medicine."

Dr. Cyrus E. Burford, St. Louis, nationally known urologist, received the 1953 Distinguished Service Award given by the Mississippi Valley Medical Society. Dr. Burford is professor of urology at St. Louis University and is past president of the Missouri State Medical Association, St. Louis Medical Society, American Urological Association, American Association of Genito-Urinary Surgeons, etc. The Distinguished Service Award is given annually to a member of the Society "who has rendered unusual and distinguished service to the medical profession."

The awards, comprising plaques and gold medals, were presented to Dr. Sanders and Dr. Burford, by the president of the Society, at the banquet held on the occasion of the eighteenth annual meeting of the Society, at the Abraham Lincoln Hotel, Springfield, Illinois, September 24.

AMERICAN MEDICAL WRITERS' ASSOCIATION

The tenth annual meeting of the American Medical Writers' Association, Springfield, Illinois, September 23, was the best attended one to date. The 1954 officers elected were:

President-Elect — Lee van Antwerp, M. D., Chicago

First Vice-President—W. W. Bauer, M.D., Chicago

Second Vice-President—Stewart Wolf, M.D., Oklahoma City, Oklahoma.

Editor—Lee van Antwerp, M.D., Chicago

Accounting Officer—N. C. Barwasser, M.D., Moline, Illinois

Secretary-Treasurer — Harold Swanberg, M.D., Quincy, Illinois

Board of Directors elected to serve two years:

Charles, E. Lyght, M.D., Rahway, New Jersey

John R. Miner, Sc. D., Rochester, Minnesota

Theodore R. Van Dellen, M.D., Chicago

Wallace Marshall, M.D., Two Rivers, Wisconsin

Dean F. Smiley, M.D., Chicago

Dr. Jacob E. Reisch, Springfield, Illinois, elected last year, is the 1954 president.

The 1954 meeting will be held at the Hotel Sherman, Chicago, September 24, during the nineteenth annual meeting of the Mississippi Valley Medical Society (September 22, 23, 24) at the same hotel.

New regulations were adopted for the Association's journalism awards. These awards are given annually by the Association to United States and Canadian medical periodicals as a result of a gift by Harold Swanberg, M.D., secretary of the association. The new regulations divide medical periodicals into six classifications, with an award for each classification, which includes the general medical periodicals, speciality journals, city or county medical society bulletins, and the free journals of pharmaceutical, publishing, and related companies. The awards are akin to the Pulitizer Prizes in Journalism given to newspapers by Columbia University and nominations are conducted in a similar manner.

The same Review Committee of the Association which served last year will again function in 1954—Morris Fishbein, M.D., chairman, and Dean F. Smiley, M.D. of Chicago and Richard M. Hewitt, M.D. of Rochester, Minnesota. Nominations for the 1954 Awards must be received by February 1, 1954. Regulations and nominating forms may be obtained from the Secretary, Harold Swanberg, M.D., W.C.U. Building, Quincy, Illinois.

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The **American Journal of Surgery,** established in 1891, has been honored as recipient of the first Honor Award for Distinguished Service in Medical Journalism to be given by the American Medical Writers' Association. The award, consisting of a plaque, was presented to the editor of the **American Journal of Surgery,** Dr. Thurston Scott Welton of Brooklyn, New York, emeritus professor of clinical obstetrics and gynecology, State University of New York. The award is presented annually "for accuracy, clarity, conciseness, and newness of information in articles, editorials and other material; for excellence of design, printing and illustrations, and for distinguished service to the medical profession, "rendered by a United States or Canadian medical periodical."

AMERICAN COLLEGE OF RADIOLOGY

Diagnostic x-ray has taken on color. An adaptation of a process developed by the Eastman Kodak Company, Rochester, New York, for making full color photographs from ordinary black and white negatives was described in the October **American Journal of Roentgenology, Radium Therapy and Nuclear Medicine.**

"The process allows for expression beyond the latitude of purely mechanical methods and permits a very acceptable finished result without the loss of roentgenographic detail," according to Dr. Andrew H. Dowdy and Dr. Louis J. Bonann.

Dr. Dowdy is director of the department of radiology at the University of California School of Medicine at Los Angeles, and Dr. Bonann is associated with the department.

The report said the process was developed as a teaching medium for the new School of Medicine of the University of Californial at Los Angeles. Brilliant colored transparencies of an x-ray picture were desired as illustrations for the formal lectures on roentgenology.

AMERICAN ACADEMY OF GENERAL PRACTICE

The American Academy of General Practice makes the first official announcement of its sixth annual scientific assembly which will be held March 22-25, 1954, in Public Auditorium, Cleveland, Ohio, by disclosing the names of such topflight men as Sir Alexander Fleming, Dr. Howard Rusk, and Dr. E. J. McCormick, who are headlining the scientific program. The entire program will be presented by men of equal note and by leaders in the fields to be covered. Family doctors who have already heard of the meeting, term it the most significant and interesting yet presented by the Academy. The program itself will be fast-paced, well diversified, and completely applicable to daily practice.

A quick look at the program shows symposiums on peptic ulcer, tuberculosis, headache and dizziness, and antibiotics, a live clinic on rehabilitation procedures, presentations on the commonly missed diagnoses of skin diseases, the almost forgotten woman — the routine multipara, and unnecessary gynecologic surgery, Arthritis, anemia, surgical problems, and recent advances in therapeutics will also be covered.

A full social program is being planned for the wives culminating with a President's Reception, the first the Academy has had, for the entire attendance.

NEWS NOTES FROM THE AMERICAN MEDICAL ASSFCIATION

Fall Series of "March of Medicine"

A better look at the nation's leading health problems was made available to the American TV-viewer when the popular "March of Medicine" television series was resumed in October over the NBC network. Actual live demonstrations from leading medical centers are being telecast to create greater public awareness of the extensive research being carried out by the medical profession. Sponsored by Smith, Kline & French Laboratories and the American Medical Association, the series features one telecast a month—in October, November and December—over 70 NBC network stations in the United States and also in Ottawa, Toronto and Montreal.

A report on the extent of research being carried out in various parts of the country on cancer—the nation's second major health problem—was aired on Thursday, November 5. High lights of the A.M.A.'s annual clinical session in St. Louis will be covered in the third program December 3. The first telecast, broadcast October 8, featured a progress report on research and treatment of some types of heart disease—the nation's number one health problem.

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Voluntary Health Insurance Shows Gains

In all parts of the country, the American people voluntarily increased their protection against the unexpected costs of hospital, surgical, and medical care to new heights in 1952—reports the Health Insurance Council in its current annual survey of accident and health coverage in the United States. The A.M.A.'s Council on Medical Service is distributing copies of the report to medical schools, teaching hospitals, and state and county medical societies.

Organizations contributing data to the Insurance Council's report include insurance companies, Blue Cross, Blue Shield, and various other independent plans sponsored by business and industry, employee benefit associations, and private group clinics.

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'53 "Apparatus Accepted" Now Available

Released late in October was the 1953 edition of "Apparatus Accepted," a publication of the A.M.A.'s Council on Physical Medicine and Rehabilitation. This booklet lists various devices which meet the Council's standards of acceptance and gives brief descriptions of them. Also included are the Council's rules for submitting products and the minimum requirements set up for certain devices. Copies may be secured on request from the Council.

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A.M.A. Prepares New Heart Exhibit

Depicting graphically the pumping action of the heart and its valves, a new health education display has been created by the A.M.A.'s Bureau of Exhibits for showings at fairs, expositions, and similar public gatherings.

This large scale exhibit requires an extended space 20 feet long and four to six feet in depth. If space is limited, it may be shown in a booth 10 feet square. State and county medical societies may book the exhibit through the Bureau.

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Laurels for A.M.A. Staff Member

An Honor Award was presented to Dr. W. W. Bauer, director of A.M.A.'s Bureau of Health Education, for "distinguished contributions to medical literature" by the American Medical Writers' Association at its tenth annual convention held in Rockford, Illinois. The citation reads, in part: "In public health, in writing, in administration, in health education and in other activities you have provided leadership and wisdom that have been appreciated by many and respected by all. Public Health has become for you Health of the Public . . ."

American Academy of Ophthalmology

Dr. Algernon B. Reese, New York, was chosen president-elect of the American Academy of Ophthalmology and Otolaryngology in Chicago in October. He will assume the presidency in January 1955.

A native of Charlotte, North Carolina, Dr. Reese is clinical professor of ophthalmology at Columbia University College of Physicians and Surgeons and attending ophthalmic surgeon and pathologist at the Institute of Ophthalmology, both of which are associated with the university. He received his medical training at Harvard Medical School and the University of Vienna.

Other officers elected at the meeting include Dr. Francis Heed Adler, Philadelphia; Theodore E. Walsh, St. Louis, and Dohrman Paschel, San Francisco, all vice presidents. Dr. Howard P. House, Los Angeles, retired as secretary for otolaryngology, and Dr. Lawrence R. Boies, Minneapolis, was elected to succeed him. Dr. Daniel Snydacker, Chicago, was made secretary for home study courses.

National Society for Crippled Children and Adults

For outstanding achievement and service through its nationwide program of employment for the crippled, the National Society for Crippled Children and Adults has been awarded the Distinguished Service Certificate by the President's Committee on Employment of the Physically Handicapped. The award, which is the highest honor that can be conferred upon a cooperating group by the committee, was announced by Vice-Admiral Ross T. McIntire, chairman, for the nation's capitol.

Dr. William T. Sanger of Richmond, Virginia, is president of the National Society. Headquarters of the Easter Seal Society are at 11 South LaSalle, Street, Chicago, with Lawrence J. Linck, executive director.

United Cerebral Palsy

Vocational rehabilitation of the adult cerebral palsied in the United States could stop a drain of $500,000,000 a year on the national economy, Karl K. Van Meter, of New York, national Executive Director of United Cerebral Palsy, declared recently at a hearing on major health problems by the House of Representatives Committee on Interstate and Foreign Commerce.

Speaking on behalf of the only nation-wide voluntary health organization devoted exclusively to a united attack on cerebral palsy, Mr. Van Meter pointed out that there are an estimated 350,000 adult cerebral palsied in the nation, most of whom have normal life expectancies.

"Assuming that 10 per cent of the adults are self-supporting," he explained, "the remainder of 315,000 require at least $600 a year for their maintenance, a total of $189,000,000 a year."

On the other hand, if these 315,000 could be rehabilitated and made employable even at the rate of only $1,000 a year, he added, "the difference from an economic standpoint would be over half-a-billion dollars."

Pan American Medical Association

More than 2,500 doctors and medical researchers from 22 nations of the Western Hemisphere will exchange information on the latest developments in medicine, surgery, and related fields during a 16-day medical congress to be held in six South American cities and aboard ship en route from New York to these ports, it was announced recently by Dr. Charles Crocker of San Francisco, executive secretary of the Pan American Medical Association.

This 26 year old organization of doctors, which annually brings together leaders in all branches of medicine and public health will sail from New York January 6 with over 700 United States doctors and their families and associates to meet with their colleagues at this year's conference meeting-points in Caracas, San Juan, Ciudad Trujillo, St. Thomas and Havana, Dr. Crocker added.

The schedule of scientific sessions is planned to include all branches of medicine and surgery as well as allied professions.

Papers will be presented each morning of the Congress, on ship and ashore. The afternoons will be occupied with panel discussions, presentations of scientific exhibits, and the showing of sound and color films concerning new techniques and recent results of clinical and laboratory research.

The association is a non-profit membership organization supported by members of the medical profession.

National Foundation for Infantile Paralysis

Dr. Theodore E. Boyd of Scarsdale, New York has been appointed assistant director of research for the National Foundation for Infantile Paralysis, according to an announcement by Basil O'Connor, president of the March of Dimes organization.

Dr. Boyd has been a member of the research department of the National Foundation since 1947 and formerly served as chairman of the research department of the Loyola University School of Medicine in Chicago. His appointment comes as the National Foundation is developing plans for massive nationwide testing of a trial polio vaccine. During his association with the National Foundation over the past six years, Dr. Boyd has helped guide the complex network of research projects financed by the March of Dimes which have resulted in the contemplated field trials.

(BULLETIN BOARD CONTINUED ON PAGE 592)

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BOOK REVIEWS

Managing Your Coronary. By William A. Brams, M.D., 158 pages. Price, $2.95. Philadelphia: J. B. Lippincott Company, 1953.

This small book was designed to be read by the layman convalescing from a myocardial infarction. In general the treatment of the subject is quite realistic—perhaps too realistic, for some patients at such a time. The methods of making the diagnosis are covered very thoroughly, and, wisely, the author emphasizes that all chest pain and palpitations are not due to coronary occlusions. He even includes a differential diagnosis.

In discussing therapy Dr. Brams emphasizes the fact that nature must do the healing, and his recommendations about the amount of bed rest are flexible. Some physicians, however, will object to his enthusiasm for anticoagulants.

The section on the physiology of the heart is accurate but perhaps too detailed for the average layman. The author discusses with fairness the role of cholesterol, and stresses weight reduction in the program of management and prevention. He properly emphasizes the fact that low cholesterol diets are at present experimental.

The section on rehabilitation is particularly good, and the author goes to great lengths to point out that the person who has a coronary is by no means always disabled.

The book is enlivened with case reports from the author's practice which are well selected for the most part. The illustrations by Hertha Furth are well done and appropriate.

As with any therapeutic agent, this book should be restricted to patients who are able to benefit from it, and the physician should first read it to be sure that the author's views are not too divergent from his own.

Dynamic Psychiatry. By Louis S. London, M.D. Volume 1. **Basic Principles.** 98 pages. Price, $3.00. Volume 2. **Desire for Crippled Women.** 131 pages. Price, $2.50. **Frustrated Women.** 132 pages. Price, $2.00. New York: Corinthian Publications, Inc., 1952.

Here are three small volumes dealing with an assortment of psychiatrics topics, though volumes two and three are concerned exclusively with sexual maladjustment. Since the three volumes total only 356 pages, one wonders if such division was necessary, regardless of subject matter.

Volume one presents some extremely interesting material, especially the historical background for present day concepts. It is taken for granted that the author was not attempting to cover all the basic principles of dynamic psychiatry in 98 pages.

Volume two is a case report on an unusual patient with transvestism. One hundred pages are given over to the patient's drawings and the accompanying explanations. Although each picture differs from the others in some details, it seems that a far smaller selection of drawings could have illustrated the main points.

Volume three consists largely of case reports of very frustrated women. The sexual activities of these women are described in full detail. The material is arranged very much as it came out in analytic sessions, and historical sequence is consequently hard to follow. Nothing is said about the frustrated women who had no sexual activity to talk about.

It is presumed that other volumes under the title "Dynamic Psychiatry" are to appear, since these three cover only a segment of the problem.

Mechanisms of Urologic Disease. By David M. Davis, M.D., Professor of Urology Emeritus, Jefferson Medical College; Visiting Lecturer in Urology, Graduate School of Medicine, University of Pennsylvania. 156 pages. Price, $4.50. Philadelphia and London: W. B. Saunders Company, 1953.

Designed to be brief, this book obviously omits some differential diagnoses, and devotes but little space to discussion of controversial matters. Intended primarily as a foundation upon which to build an increasing knowledge of urology, it describes the effects of altered physiologic processes more clearly than other works on the same subject.

The author has presented the material in a refreshingly different and helpful manner.

Practical Dermatology. For Medical Students and General Practitioners. By George M. Lewis, M.D., F.A.C.P., Professor of Clinical Medicine (Dermatology), Cornell University Medical College; Attending Dermatologist, The New York Hospital; Secretary, the American Board of Dermatology and Syphilology. 328 pages, with 99 figures. Price, $7.50 Philadelphia and London: W. B. Saunders Company, 1952.

As the title indicates, this book is designed primarily for the medical student and general practitioner. It attempts to group the related diseases which help the student in the study of multiple dermatologic disorders.

The description of the diseases is not verbose, and is correlated with excellent black and white photographs. This book gives the reader a good word description to associate with the visual image. Unlike many texts on dermatology, the book is not voluminous, and is so written that the new dermatologist can easily follow the sober middle of the road opinion of the author. More space is devoted to the more common skin disorders, while the rarer dermatoses are either omitted or given in brief.

A therapeutic regimen is recommended for each disease process, and a more comprehensive formulary is included in chapter 24. The bibliography is adequate for those who desire to read further and in more detail.

In summary, this is a good text book for medical students, and one which medical practitioners will also find of considerable value. It should help the medical profession to develop a better understanding of the many disorders of the skin.

The Surgery of Infancy and Childhood. Its Principles and Techniques. By Robert E. Gross, M.D., D.Sc., William E. Ladd, Professor of Children's Surgery, the Harvard Medical School, and Chief of Surgical Service, the Children's Hospital, Boston. 1,000 pages, with 1,488 illustrations. Price, $16.00. Philadelphia and London: W. B. Saunders Company, 1953.

Although this is a completely new book, it can be compared to the previous book on abdominal surgery in infancy and childhood by Ladd and Gross. It is written in the same style, is profusely illustrated, and contains up-to-date statistics from the Children's Hospital in Boston. Besides those on the usual abdominal conditions, there are chapters devoted to the urinary tract and its various congenital anomalies, and also to the surgical approach to congenital heart disease, in which field Dr. Gross has contributed so largely. In addition, there are chapters on funnel chest, tumors of the neck and thorax, and bronchiectasis. There is an excellent discussion of the preoperative and postoperative care of premature as well as normal infants and children. Emphasis has been placed on good anesthesia and the proper use of pre-operative sedation.

This book belongs in the library of every surgeon who attempts to perform any major procedures on children, and of the pediatrician and general practitioner, on whom the early diagnosis and post-operative care of surgical conditions often rests. There is no other available volume which can approach this one in its complete treatment of the problems of pediatric surgery.

Fool's Haven. By C. C. Cawley. 210 pages. Price, $2.75. Boston, Massachusetts: House of Edinboro, 1953.

This book is written in the spirit of the crusader, as a protest against faith-healing. Its effectiveness is greatly lessened by the author's attempt to expand material for a magazine story into a 210-page novel. The plot is thin and the moral, although unmistakably apparent, will be questioned by many physicians. The hero, after his fiancee dies because of her mother's refusal to permit operation for acute appendicitis, decides to become a lawyer in order to correct the evils of society. He reasoned that if there was some god watching people get hurt, he was "not caring, or at least not doing anything about it," and that "The safest bet was to do all you could about it yourself, and that was what I intended to do."

The author's immaturity is evident throughout the book, and weakens his argument in a really good cause.

In Memoriam

MALCOLM H. McBRYDE, M.D.

On July 14, 1953, death came to our friend and colleague, Dr. Malcolm H. McBryde of Reidsville.

Dr. McBryde was born September 12, 1877, in Harnett County, North Carolina, and after attending Little River Academy and Boston Latin School, Boston, Massachusetts, he entered the University of Richmond Medical School, completing his medical education in 1901. His early years of medical practice were in Milton, North Carolina.

He was a member of the Rockingham County Medical Society and the North Carolina State Medical Society for over 50 years. During this time he was an outstanding general practitioner, loved and respected by the people of Rockingham and Caswell counties. He was honored by the people of this county in 1927 by being elected to the state Legislature.

He was married in 1936 to Margaret Whitlock of Milton, a devoted and beloved teacher in the city schools of Reidsville, who survives him.

He was active in his church and all religious affairs of the community, and was an ardent student of the Bible. His work here among the poor, although without recompense, was far more extensive than was generally known by his colleagues.

In his memory, BE IT RESOLVED that we, the Rockingham County Medical Society, extend our deep and abiding sympathy to those who mourn his passing.

And BE IT FURTHER RESOLVED, that a copy of his remembrance be given to members of his immediate family, sent to the **North Carolina Medical Journal** and incorporated in the proceedings of this Society.

B. F. COZART, M.D.
W. S. HESTER, M.D.

BULLETIN BOARD

(CONTINUED FROM PAGE 590)

AMERICAN ACADEMY OF PEDIATRICS

Further progress in the development of a practical polio vaccine was reported by Dr. Jonas E. Salk, research professor of bacteriology at the University of Pittsburgh School of Medicine, at the twenty-second annual meeting of the American Academy of Pediatrics, held in Miami on October 9. Dr. Salk disclosed that on the basis of present findings "there may be several possible methods of producing a safe and effective vaccine against polio."

The Pittsburgh scientist, whose studies are being supported with March of Dimes funds from the National Foundation for Infantile Paralysis, revealed that an additional 474 children and adults have been vaccinated with several experimental vaccines. The vaccines used have proved to be completely safe and capable of stimulating the production of polio antibodies.

AMERICAN ASSOCIATION OF BLOOD BANKS

The American Association of Blood Banks elected the following officers for 1953-1954 as the last act of the business phase of its sixth annual meeting in Dallas, Texas: Dr. Aaron Kellner of New York, president; Dr. Merlin L. Trumbull of Baptist Hospital, Memphis, Tennessee, president-elect; Dr. John Upton, San Francisco, vice president; Mrs. Charles D. Hemphill, San Francisco, treasurer; Miss Marjorie Saunders, Dallas, Texas, secretary.

* * *

Evidence that the blood platelets, little understood cells which help coagulate blood, can be grouped and typed like the red cells was presented for the first time on October 19 before the American Association of Blood Banks.

The importance of the observation, based on more than 50,000 tests, lies in the fact that the four groups and six types so far established are sometimes incompatible, like the four familiar red cell groups and the Rh and non-Rh blood types. The discovery is therefore regarded as offering a key to certain types of blood disorders hitherto impossible or difficult to understand and treat.

The report was presented before the sixth annual meeting of the Association by Mario Stefanini, M.D., for himself and Drs. Jyota B. Chatterjea, M.D., Gerald I. Plitman, M.D., William Damashek, M.D., and Mrs. Irma B. Mednicoff, Research Assistant, all of the New England Medical Center and Tufts Medical School of Boston, Massachusetts. They emphasized that their results are preliminary and must be checked with caution.

INTERNATIONAL COLLEGE OF SURGEONS

The Woman's Auxiliary of the United States and Canadian sections of the International College of Surgeons has set aside $6,500 to be used for grants for surgical fellowships.

The announcement was made by Mrs. Walter C. Burket of Evanston, Illinois, national president of the Auxiliary.

The funds as voted by the Auxiliary's board of directors will be distributed as follows: $3,000 to finance study abroad by an American or Canadian surgeon; $3,000 to finance study in the United States or Canada by a foreign surgeon; $500 for a senior medical student at the University of British Columbia, in Vancouver, B. C.

Details of the grants will be announced later.

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

Public Health Service

The appointment of Dr. Floyd S. Daft as director of the National Institute of Arthritis and Metabolic Diseases, National Institutes of Health, was announced recently by Dr. Leonard A. Scheele, Surgeon General of the Public Health Service, Department of Health, Education, and Welfare.

* * *

A competitive examination for appointment of medical officers to the Regular Corps of the United States Public Health Service will be held on February 2, 3, and 4, 1954. Examinations will be held at a number of points throughout the United States, located as centrally as possible in relation to the homes of candidates. Applications must be received no later than December 24, 1953.

The Regular Corps is a commissioned officer corps composed of members of various medical and scientific professions, appointed in appropriate categories such as medicine, dentistry, nursing, engineering, and pharmacy.

Application forms and additional information may be obtained by writing to the Chief, Division of Commissioned Officers, Public Health Service, Department of Health, Education, and Welfare, Washington 25, D. C. Completed application forms must be received in the Division of Commissioned Officers no later than December 24, 1953. Applications received after that date may not be accepted and will be returned to the applicant.

DEPARTMENT OF THE ARMY

Instruction in interpersonal relationships in the care and management of patients will be emphasized in all Army Medical Service training programs, it has been announced by Maj. Gen. George E. Armstrong, Surgeon General of the Army.

More often referred to as the "doctor-patient relationship," the scope of the concept within the Army Medical Service has been broadened to include all members of the medical team handling patients.

HEALTH INSURANCE COUNCIL

The American people voluntarily increased their protection against the unexpected costs of hospital, surgical and medical care to new record high levels in 1952, the Health Insurance Council reported recently in its annual survey of accident and health coverage in the United States. Every section of the country participated in the gains, the Council said.

Cash benefits flowing from voluntary health protection aggregated more than $2 billions in 1952, the Council stated in its first public estimate of these figures. About half this amount went to help meet the cost of hospitalization, and over a half billion dollars more went towards operations and doctors' bills. Another half billion dollars represented benefit payments by insurance companies replacing income lost due to accident or sickness. Thus voluntary health protection is now taking care of a substantial part of the nation's health bill, the Council stated.

Coverage in North Carolina at the end of 1952 was as follows:

Hospital expense	$1,625,000
Surgical expense	1,516,000
Medical expense	213,000

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1. Greenhill, J. P.: Principles and Practice of Obstetrics, ed. 10, Philadelphia, W. B. Saunders Company, 1951, pp. 103-104; 311; 332.

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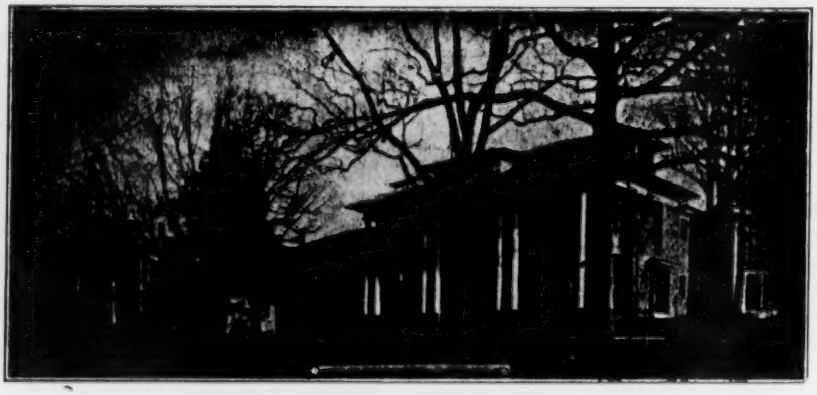

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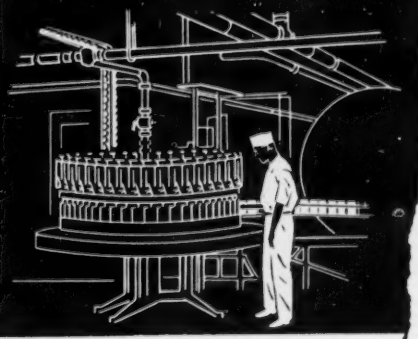

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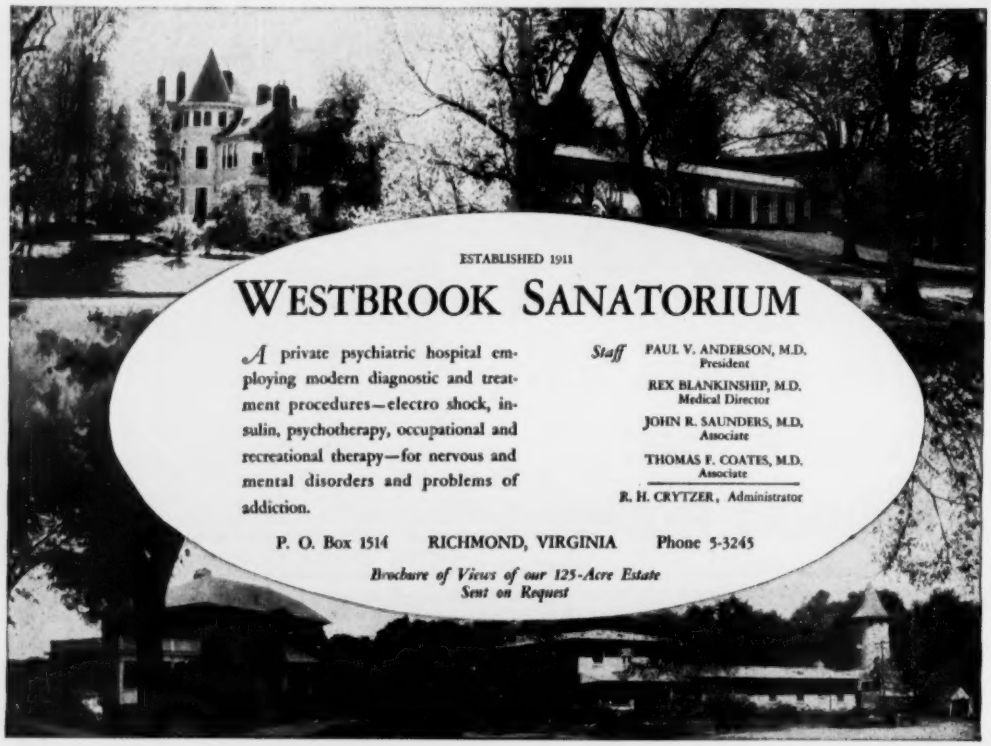

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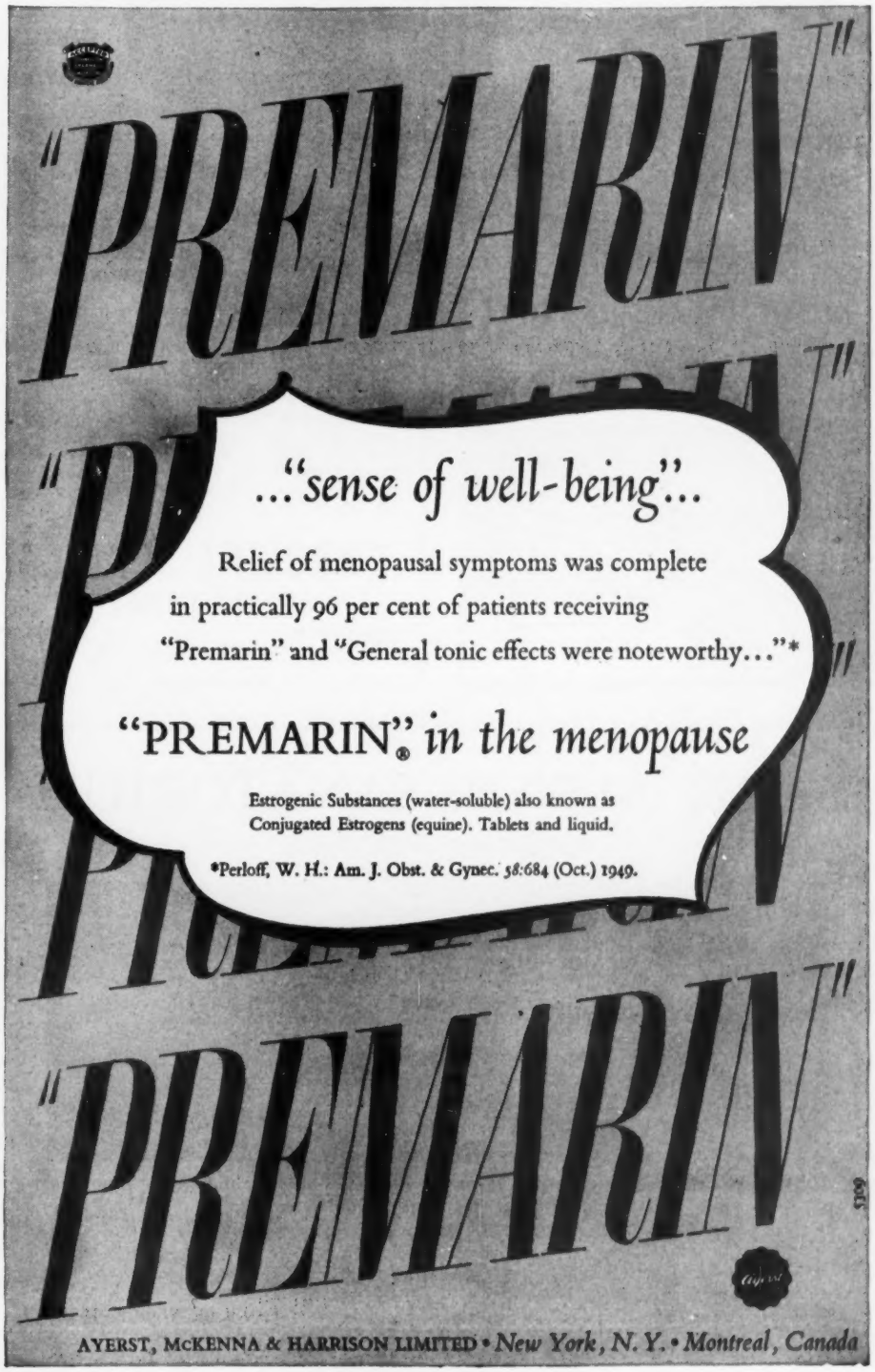
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*Perloff, W. H.: Am. J. Obst. & Gynec. 58:684 (Oct.) 1949.
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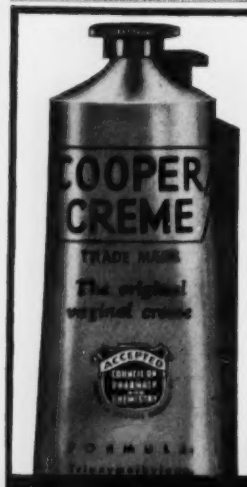

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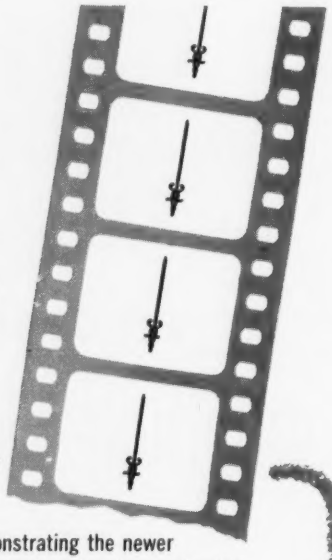

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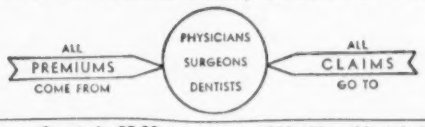

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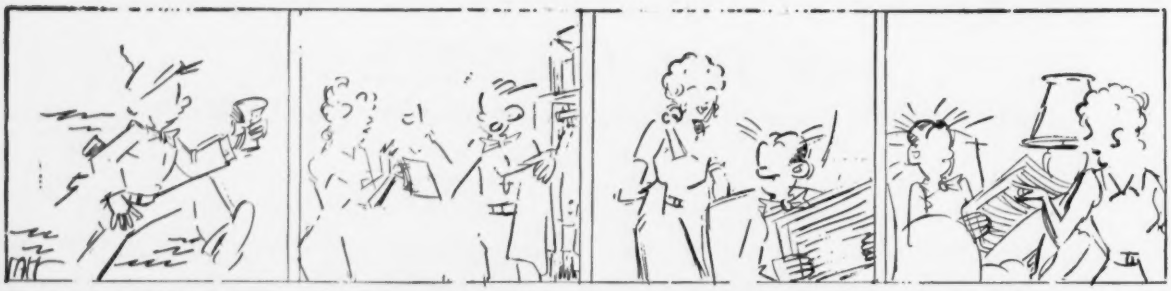

This is how Chic Young, the cartoonist, makes a first rough sketch for the famous strip.

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HOW ARE WE GOING TO SAVE MONEY?
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Then when each panel in a strip meets his approval, he makes a careful pencil rendering as above.

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HUM!
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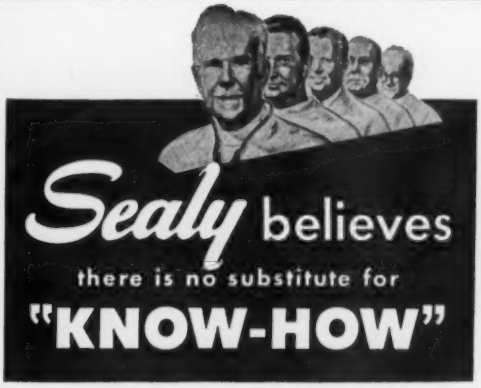

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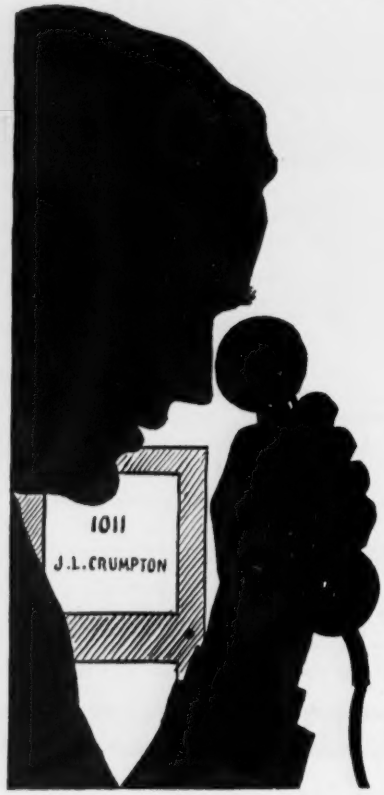

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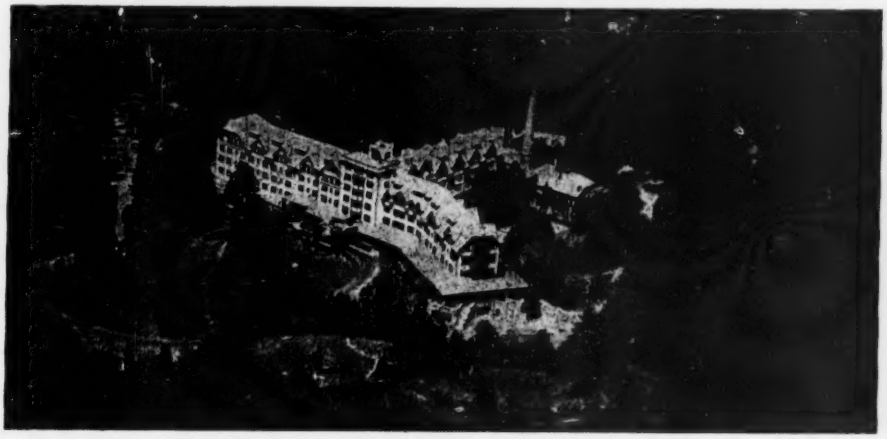

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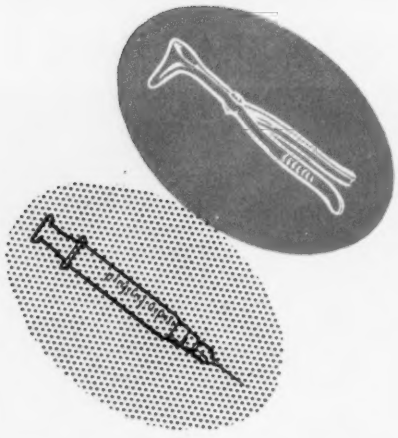

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1. Frost, L. H., and Jackson, R. L.: J. Pediat. 39: 585-592, 1951.

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